70

DENON

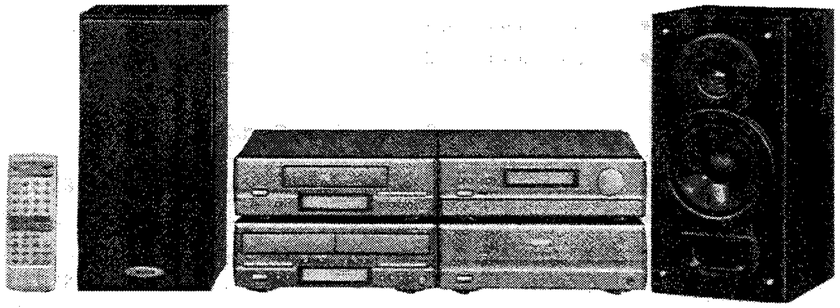
Hi-Fi Personal Component System

Europe Model

SERVICE MANUAL

PERSONAL COMPONENT SYSTEM

UNIT No. UPO-250 (Power Amplifier)
UNIT No. UTP-250 (MW, LW, FM Tuner/Pre Amplifier)
UNIT No. UDRW-250 (Cassette Tape Deck)
UNIT No. UCD-250 (Compact Disc Player)



COMPACT
disc
DIGITAL AUDIO

- **The D-250 Personal Component System consists of the following:**

Power Amplifier	UPO-250
MW, LW, FM Tuner / Pre Amplifier Section	UTP-250
Remote Control Unit	RC-154
Cassette Deck Section	UDRW-250
CD player Section	UCD-250

MAIN FEATURES

- **AM/FM 30-station random preset tuner**
  Random presetting permits easy operation and will be convenient for the increased number of FM stations in the future.
- **Independent power amplifier designed for quality sound**
  High quality 50 W per channel power amplifier with large speaker terminals.
- **New SDB control**
  The Super Dynamic Bass control circuit delivers clear bass sound.
- **Super linear converter and high performance digital filter**
  Denon's unique systems for preventing loss of CD sound quality permit excellent sound field reproduction.
- **Editing circuit**
  Automatic selection of CD tracks for minimum blank space on the tape when recording.
- **Dolby B, C and HX PRO circuits**
  For high quality sound in playback and recording.
- **CD SRS circuit**
  CDs can be recorded at the touch of a button.
- **Easy-to-use remote control unit**
- **Auto on/off function**
  This function switches on the power with just a press of the CD or cassette deck play button. The power is switched off about 10 minutes after playback has finished.

BEFORE USING

- **Moving the system**
  To prevent short-circuiting or damage of connection cords, be sure to unplug the power cord and disconnect all connection cords before moving the system.
  In addition, always remove CDs before moving the system. If not, the CD may be scratched.
- **Before turning the power on**
  Check again that all connections are proper and that the connection cords are not damaged. Always set the power switch to the STANDBY position before disconnecting connection cords.
- Humming may be produced if the system is set near a TV set or other audio component or its connection cords. If this happens, try changing the position of the equipment and connection cords.
- Do not move the system abruptly from a cold place to a warm place, as this may cause dew (water droplets) to form in the set, preventing proper operation. If this happens, wait one hour before using the system.
- **Be sure to keep this manual**
  The illustrations used in this manual may differ from the actual system.

Check that the following parts are included in the package aside from the main unit:

① Operating Instructions	1
② FM Antenna	1
③ AM Loop Antenna	1
④ Remote Controller	1
⑤ R6P/AA batteries	2
⑥ System Connectors 1 & 2	2
⑦ FM Antenna adaptor	1
⑧ Pin Plug Cords	4

NIPPON COLUMBIA CO., LTD.

GENERAL SECTION

TABLE OF CONTENTS

General Section

- Main Features 1
- Before Using 1
- Main Specifications 3
- Operating Instructions .... 4~24

Tuner, Pre Section

- Level Diagram 25
- Block Diagram 26, 27
- Assembly Procedures 28, 29
- Adjustment 30, 31
- Semiconductors .... 32~34
- Microprocessor Documentation .... 34~36
- Microprocessor Peripheral Wiring Diagram 37
- Printed Wiring Board, Parts List .... 38~41
- Wiring Diagram 42
- Schematic Diagram 43
- Exploded View, Parts List 44
- Remote Control Unit 45

Amplifier Section

- Disassembly Procedures 46, 47
- Block Level, Diagram 48
- Adjustment 49
- Semiconductors 49
- Printed Wiring Board, Parts List .... 50~52
- Schematic Diagram 53
- Exploded View, Parts List 54, 55
- Wiring Diagram 56

CD Section

- Disassembly Procedures 57, 58
- Block Diagram 59
- Laser Pickup 60, 61
- Service Points 62, 63
- Adjustment Method 64, 65
- Printed Wiring Board, Parts List .... 66~69
- Semiconductors .... 70~74
- Microprocessor Peripheral Wiring Diagram 75
- Wiring Diagram 76
- Schematic Diagram 77
- Exploded View, Parts List 78
- Disassembly of CD Mechanism 79

Cassette Deck Section

- Disassembly Procedures 80, 81
- Level Diagram 82
- Block Diagram 82
- Adjustment 83, 84
- Semiconductors .... 84~86
- Microprocessor Documentation 87, 88
- Microprocessor Peripheral Wiring Diagram 89
- Printed Wiring Board, Parts List .... 90~95
- Wiring Diagram 96
- Schematic Diagram 97
- Exploded View, Parts List 98
- Cassette Mechanism .... 99~104

Tuner Pre-Amp Unit	UTP-250	1S
Power Amplifier Unit	UPO-250	1S
CD Player Unit	UCD-250	1S
Cassette Deck Unit	UDRW-250	1S
Top Cushion	503 1002 001	1
Top Spacer	502 0763 018	1
Top Spacer	502 0763 034	1
Space Cushion	502 9124 001	2
(Master) Carton	501 1626 012	1
Envelope Sub Assy		1S
Envelope	505 8006 019	1
Notice Sheet	515 0601 008	1
Inst. Manual	511 2421 006	1
Loop Antenna	231 0922 009	1
Remocon (RC-154)	499 0228 008	1
FM Ant. Ass'y	395 0019 025	1
Envelope Sub Ass'y		1S
Envelope	505 9119 002	1
Output Cord Ass'y	009 9022 015	2

SPECIFICATIONS

• Tuner-preamplifier (UTP-250)	
Reception Frequency Range:	FM: 87.50 MHz to 108.00 MHz AM: 522 kHz to 1611 kHz (MW), 153 kHz to 279 kHz (LW)
Receiving Sensitivity:	FM: 1.5 µV, 75 ohms (SN ratio 30 dB) AM: 20 µV (SN ratio 20 dB, MW), 35 µV (SN ratio 20 dB, LW)
FM Stereo Separation:	40 dB (1 kHz)
Bass Adjustment:	100 Hz ±8 dB
Treble Adjustment:	10 kHz ±8 dB
Super Dynamic Bass:	80 Hz +8 dB
Jacks:	PREOUT: Output jacks PHONO: Input jacks DAT: Input jacks, recording output jacks Processor: Processor input/output jacks
Dimensions (max.):	270 (W) × 86 (H) × 330 (D) mm (10-5/8" × 3-25/64" × 13")
Weight:	3.2 kg (7 lbs 10 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	18 W
• Amplifier (UPO-250)	
Rated Output Power:	50 W + 50 W (20 Hz to 20 kHz, 8 ohm)
Jacks:	6.3 mm headphone jack
Dimensions (max.):	270 (W) × 96 (H) × 330 (D) mm (10-5/8" × 3-25/32" × 13)
Weight:	4.1 kg (9 lbs 1 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	140 W
• CD Player (UCD-250)	
Wow and Flutter:	Below measurable limits (±0.001% W. Peak)
Sampling Frequency:	44.1 kHz
Light Source:	Semiconductor
Dimensions (max.):	270 (W) × 86 (H) × 313 (D) mm (10-5/8" × 3-25/64" × 12-21/64")
Weight:	3.1 kg (6 lbs 13 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	15 W
• Cassette Deck (UDRW-250)	
Type:	Horizontal 4-track, 2-channel auto reverse stereo cassette deck
Heads:	1 hard permalloy recording/playback head, 1 hard permalloy playback head, and 1 double-gap ferrite erase head
Tape Speed:	4.75 cm/s
Noise Reduction Circuits:	Dolby B and C NR
Usable Tapes:	Normal, chrome, and metal tapes
Dimensions (max.):	270 (W) × 96 (H) × 318 (D) mm (10-5/8" × 3-25/32" × 12-33/64")
Weight:	4.4 kg (9 lbs 11 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	18 W
• Remote Control Unit (RC-154)	
Type:	Infrared pulse
Number of Buttons:	41 (including 1 slide switch)
Dimensions (max.):	60 (W) × 177 (H) × 18 (D) mm (20-23/64" × 6-31/32" × 45/64")
Weight:	130 g (Approx. 6.4 oz) (including batteries)

* Maximum dimensions include controls, jacks, and covers. (W) = width, (H) = height, (D) = depth

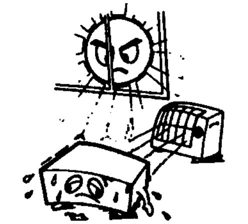
- For improvement purposes, specifications and functions are subject to change without advanced notice.

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR
SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSAETTELSE FOR STRÅLING.

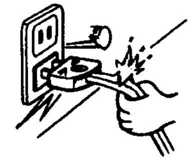
VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA
OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.
ÄLÄ KATSO SÄTEESEEN.

VARNING - OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR
ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA
EJ STRÅLEN.

NOTE ON USE/HINWEISE ZUM GEBRAUCH/OBSERVATIONS RELATIVES A L'UTILISATION/NOTE SULL'USO

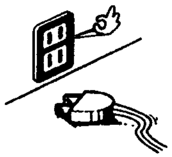


- Avoid high temperatures
  Allow for sufficient heat dispersion when installed on a rack.
- Vermeiden Sie hohe Temperaturen
  Beachten Sie, daß eine zureichende Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.
- Eviter des températures élevées
  Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.
- Evitate di esporre l'unità a temperature alte.
  Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.

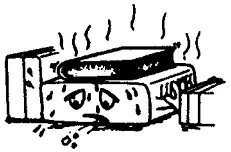


- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzkabel um.
  Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.
- Manipuler le cordon d'alimentation avec précaution.
  Tenir la prise lors du débranchement du cordon.
- Manneggiate il filo di alimentazione con cura.
  Agite per la spina quando scollegate il cavo dalla presa.

- Keep the set free from moisture, water, and dust.
- Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.
- Protéger l'appareil contre l'humidité, l'eau et la poussière.
- Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.

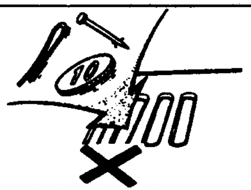


- Unplug the power cord when not using the set for long periods of time.
- Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.

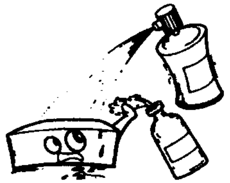


*(For sets with ventilation holes)

- Do not obstruct the ventilation holes.
- Die Belüftungsöffnungen dürfen nicht verdeckt werden.
- Ne pas obstruer les trous d'aération.
- Non coprite i fori di ventilazione.



- Do not let foreign objects in the set.
- Keine fremden Gegenstände in das Gerät kommen lassen.
- Ne pas laisser des objets étrangers dans l'appareil.
- E' importante che nessun oggetto è inserito all'interno dell'unità.



- Do not let insecticides, benzene, and thinner come in contact with the set.
- Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen.
- Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil.
- Assicuratevvi che l'unità non venga in contatto con insetticidi, benzolo o solventi.

- Never disassemble or modify the set in any way.
- Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern.
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
- Non smontate mai, nè modificate l'unità in nessun modo.

SAFETY IMPORTANT

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

(UTP-250 only)

IMPORTANT
(BRITISH MODEL ONLY)

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

The colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VAROITUS! LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

VARNING– OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

"CLASS 1
LASER PRODUCT"

Irregularities
- If the system should smoke or produce strange smells, immediately set the power switch to the STANDBY position, unplug the power cord, and contact your store of purchase.

Unregelmäßigkeiten
- Sollte das Gerät Rauch produzieren oder eigenartig riechen, stellen Sie den Netzschalter sofort auf die Position STANDBY (Bereitschaft), ziehen Sie den Netzstecker heraus und kontaktieren Sie Ihren Händler.

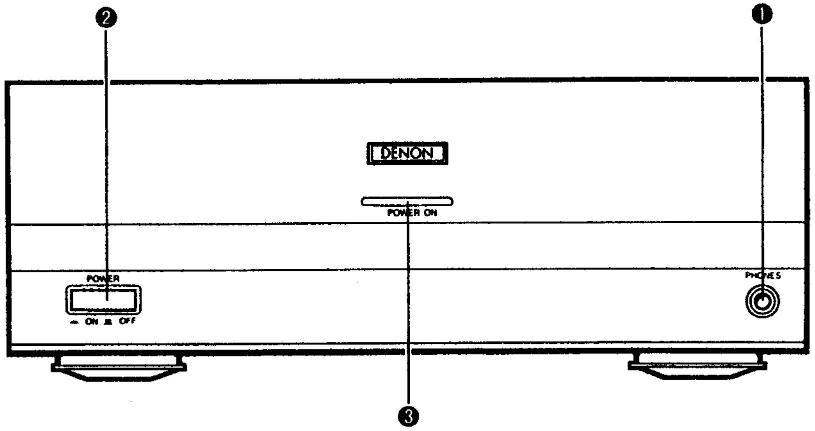
Anomalies
- Si de la fumée sort de la chaine ou des odeurs bizarres, placer l'interrupteur d'alimentation immédiatement sur la position de veille (STANDBY), débrancher le cordon d'alimentation et contacter le distributeur.

Irregolarità
- Qualora il sistema dovesse produrre del fumo o degli odori strani, collocate immediatamente l'interruttore di accensione nella posizione STANDBY, disinnestate il filo di alimentazione e rivolgetevi al negozio dell'acquisto.

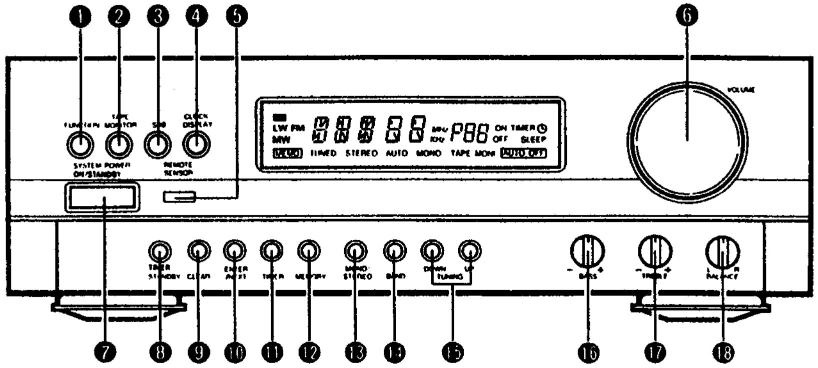
"SERIAL NO. ______________________
PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE CABINET FOR FUTURE REFERENCE"

FRONT PANEL/FRONTPLATTE/PANNEAU AVANT/PANNELLO ANTERIORE

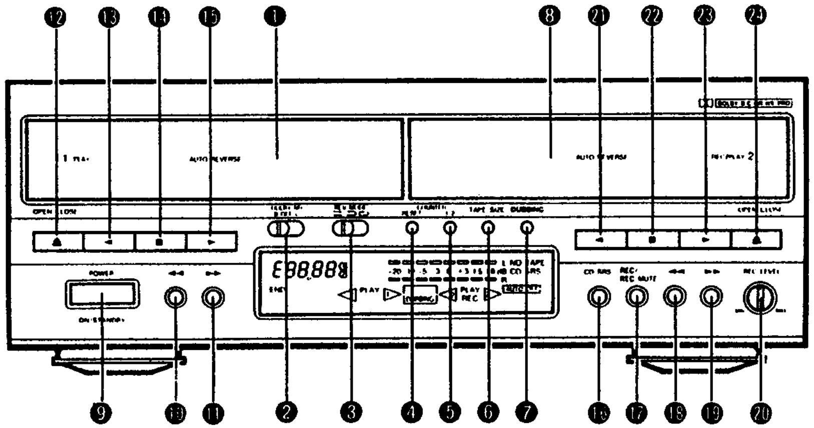
POWER AMPLIFIER
LEISTUNGSVERSTÄRKER
AMPLIFICATEUR DE PUISSANCE
AMPLIFICATORE DI POTENZA


②
①
DENON
POWER ON
POWER
ON OFF
PHONES
③

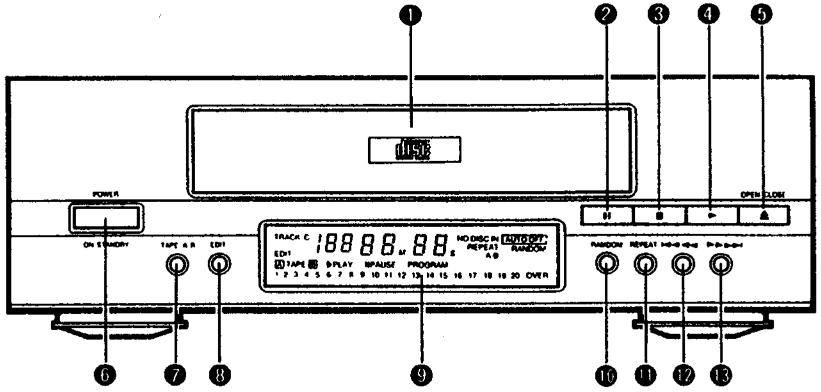
TUNER-PREAMPLIFIER
TUNER-VORVERSTÄRKER
TUNER-PREAMPLIFICATEUR
SINTONIZZATORE-PREAMPLIFICATORE


① ② ③ ④ ⑤ ⑥
FUNCTION
TAPE MONITOR
SDB
CLOCK DISPLAY
SYSTEM POWER ON/STANDBY
REMOTE SENSOR
VOLUME
LW FM MW
TUNED STEREO AUTO MONO TAPE MON AUTO OFF
ON TIMER OFF SLEEP
TIMER STANDBY
CLEAR
ENTER ADJ
TIMER
MEMORY
MONO STEREO
BAND
DOWN UP TUNING
BASS
TREBLE
L R BALANCE
⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱

CASSETTE DECK
CASSETTENDECK
PLATINE CASSETTE
PIASTRA A CASSETTE


⑫ ⑬ ⑭ ⑮ ① ⑧ ㉑ ㉒ ㉓ ㉔
1 PLAY
AUTO REVERSE
REC/PLAY 2
OPEN/CLOSE
POWER
ON/STANDBY
TAPE SIDE
DUBBING
PLAY
REC
CD SYNC
REC/REC MUTE
REC LEVEL
⑨ ⑩ ⑪ ② ③ ④ ⑤ ⑥ ⑦ ⑯ ⑰ ⑱ ⑲ ⑳

CD PLAYER
CD-SPIELER
LECTEUR CD
DISPLAY DELLA PIASTRA A CASSETTE


① ② ③ ④ ⑤
POWER
ON/STANDBY
TAPE A.R
EDIT
OPEN/CLOSE
TRACK
NO DISC IN
AUTO OFF
REPEAT
RANDOM
PROGRAM
PLAY
PAUSE
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 OVER
RANDOM
REPEAT
⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

- As an aid to better understanding the operation method, the illustrations used in this manual may differ from the actual system.
- Als Hilfestellung zum besseren Verständnis der Betriebsmethode, erlauben wir uns den Hinweis, daß sich die Abbildungen in dieser Bedienungsanleitung leicht von dem aktuellen System unterscheiden.
- Pour faciliter la compréhension de la méthode de fonctionnement, les illustrations utilisées dans ce manuel peuvent être différentes de celles de la chaîne réelle.
- Per rendere la spiegazione del metodo operativo più facile, le illustrazioni usate in questo libretto delle istruzioni possono differire dal sistema stesso.

CONTENTS

1 Main Features 4
2 Before Using 4
3 Antenna Connections 4
4 Connections 5
5 Part Names and Functions
- Power Amplifier 6
- Tuner-Preamplifier 6
- Cassette Deck 6
- CD Player 7
- Display ..... 7~9
6 Listening to Radio Broadcasts ..... 9~10
7 Using the Timer ..... 10~13
8 Cassette Deck 13, 14
- Before Recording and Playback 13
9 Playing Cassette Tapes
(Single Side Playback, Two-Side Playback and Continuous Playback) 14, 15
10 Recording Cassette Tapes 15, 16
11 Playing CDs ..... 16~19
- Compact Discs 16
- Regular Playback 17
- Other Playback Features ..... 17~19
- Edited Recording onto Sides A and B of a Tape 19
12 Remote Control Unit 20
13 Auto On/Off Function 21
14 Important Information 21
15 Specifications 21
16 Troubleshooting 22

Check that the following parts are included in the package aside from the main unit:

① Operating Instructions	1
② FM Antenna	1
③ AM Loop Antenna	1
④ Remote Controller	1
⑤ R6P/AA Batteries	2
⑥ System Connectors 1 & 2	2
⑦ FM Antenna Adaptor	1
⑧ Pin Plug Cords	4

1 MAIN FEATURES

- **AM/FM 30-station random preset tuner**
  Random presetting permits easy operation and will be convenient for the increased number of FM stations in the future.
- **Independent power amplifier designed for quality sound**
  High quality 50 W per channel power amplifier with large speaker terminals.
- **New SDB control**
  The Super Dynamic Bass control circuit delivers clear bass sound.
- **Super linear converter and high performance digital filter**
  Denon's unique systems for preventing loss of CD sound quality permit excellent sound field reproduction.
- **Editing circuit**
  Automatic selection of CD tracks for minimum blank space on the tape when recording.
- **Dolby B, C and HX PRO circuits**
  For high quality sound in playback and recording.
- **CD SRS circuit**
  CDs can be recorded at the touch of a button.
- **Easy-to-use remote control unit**
- **Auto on/off function**
  This function switches on the power with just a press of the CD or cassette deck play button. The power is switched off about 10 minutes after playback has finished.

2 BEFORE USING

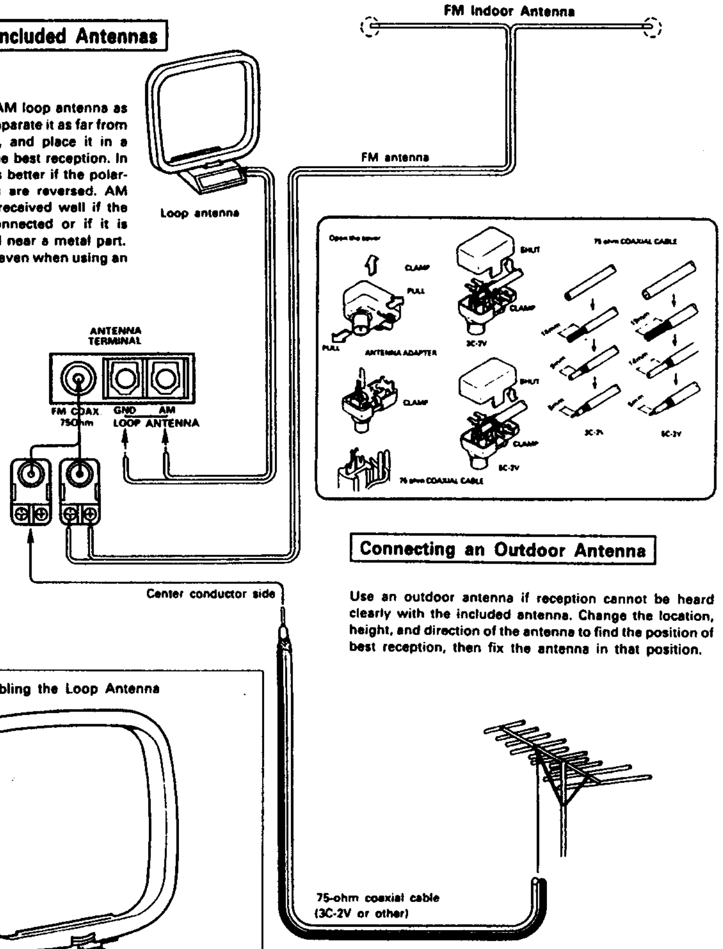
Note the following points before using the D-250.

- **Moving the system**
  To prevent short-circuiting or damage of the connection cords, be sure to unplug the power cord and disconnect all connection cords before moving the system.
  In addition, always remove CDs before moving the system. Failing to do so may result in scratched CDs.
- **Before switching on the power**
  Check again that all connections are proper and that the connection cords are not damaged. Be sure to disconnect the power plug before disconnecting or connecting the connection cords.
- Hum may be produced if a TV set or another audio component is set near this system or their connection cords are nearby. If this happens, try changing the position of the equipment and connection cords.
- Do not move the system abruptly from a cold place to a warm place, since t his may cause water droplets (condensation) to form in the equipment, preventing proper operation. If this happens, wait one hour before using the system.

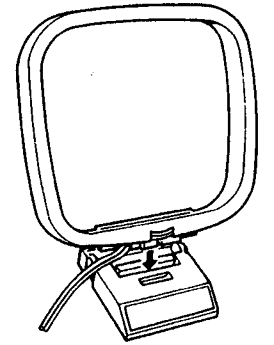
3 ANTENNA CONNECTIONS

Connecting the Included Antennas

AM Loop Antenna
Assemble the included AM loop antenna as shown in the diagram, separate it as far from the system as possible, and place it in a position that provides the best reception. In some cases, reception is better if the polarities of the connections are reversed. AM broadcasts will not be received well if the loop antenna is not connected or if it is connected but is located near a metal part. Attach the loop antenna even when using an outdoor AM antenna.



Assembling the Loop Antenna



- Remove the tie fastening the loop antenna's lead and connect the lead to the antenna terminals.

- Separate the FM and AM antenna wires from the system connector wires.

Connecting an Outdoor Antenna

Use an outdoor antenna if reception cannot be heard clearly with the included antenna. Change the location, height, and direction of the antenna to find the position of best reception, then fix the antenna in that position.

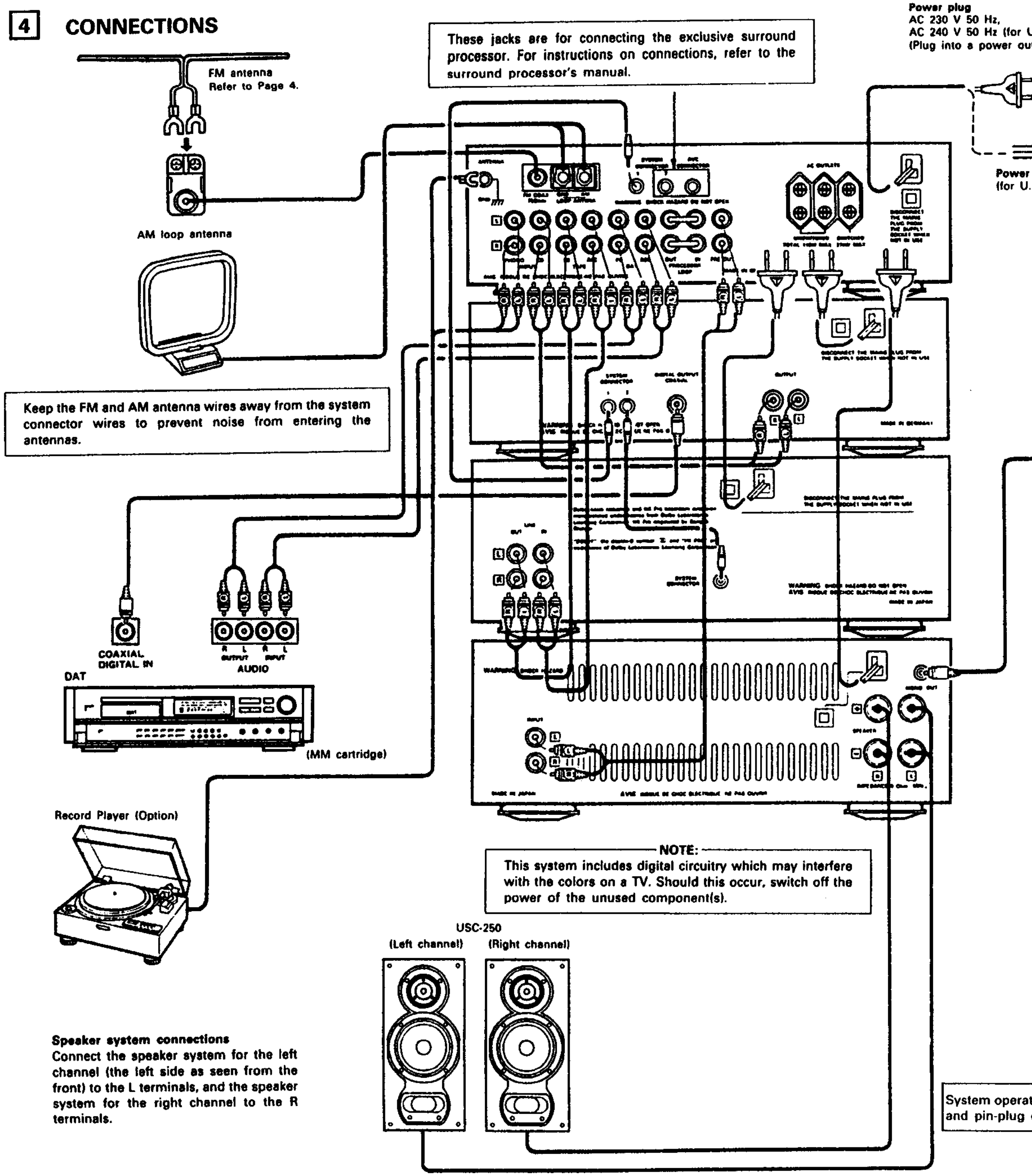
- Connect the outdoor antenna using 75-ohm coaxial cable. This will help shield the antenna from external noise.

Places for Installing Outdoor Antennas

- Install the outdoor antenna facing a broadcast station's transmission antenna.
  When surrounded by buildings or hills, place the antenna in the location which provides best reception and try changing the direction of the antenna to obtain optimum reception.
- Do not install the antenna under power lines.
  It is extremely dangerous for the antenna to come into contact with a power line.
- Install away from roads and train tracks to prevent noise from cars and trains.
- Do not install the antenna too high, as it may be hit by lightning.

4 CONNECTIONS

These jacks are for connecting the exclusive surround processor. For instructions on connections, refer to the surround processor's manual.



Keep the FM and AM antenna wires away from the system connector wires to prevent noise from entering the antennas.

Power plug
AC 230 V 50 Hz,
AC 240 V 50 Hz (for U.K. model)
(Plug into a power outlet.)

Power cord
(for U.K. model)

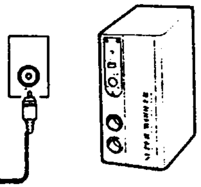
AC OUTLET

Always connect the amplifier's (UPO-250) power cord to this AC outlet.

- SWITCHED (total capacity of 370 W)
  The power of this outlet is switched on and off with the tuner's power switch.
  Plug the power amplifier's power cord into this outlet.
- UNSWITCHED (total capacity – 110W)
  The power is supplied to these outlets regardless of whether or not the tuner's power switch is turned on or off.
  Plug the power cords of the CD player and cassette deck into these outlets.

MONO OUT jack

Jack for connecting a subwoofer (super woofer) with built-in amplifier.



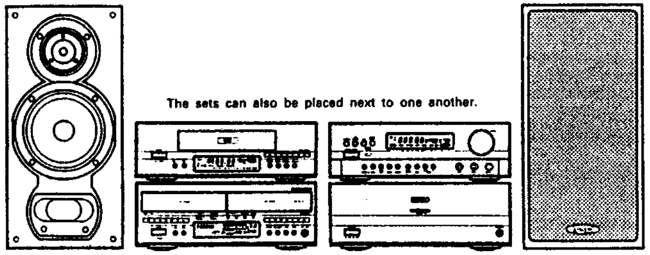
- Do not plug the power cord into the outlet until all connections have been completed. Connect properly as illustrated in the diagram.
- Check the left and right channels, then properly connect the left speaker's terminals to the amplifier's L terminals and the right speaker's terminals to the amplifier's R terminals.
- Insert the plugs securely. Incomplete connections can cause noise.
- When the power cord has been disconnected from the power outlet, wait about 5 seconds before plugging it back in.
- **Use the AC OUTLET to plug in the amplifier CD and Cassette deck. Never use it for other appliances, such as hair driers, etc.**
- Note that grouping connection cords (pin-plug cords) together with power cords or setting them near power transformers can cause hum or other noise.
- Note that if the input jacks selected with the FUNCTION button are open (if a component is not connected), there might be leakage of the reproduced sound of a component connected to another set of input jacks.

NOTE:

This system includes digital circuitry which may interfere with the colors on a TV. Should this occur, switch off the power of the unused component(s).

Speaker system connections

Connect the speaker system for the left channel (the left side as seen from the front) to the L terminals, and the speaker system for the right channel to the R terminals.



The sets can also be placed next to one another.

NOTE:

System operation is not possible and the power cannot be turned on and off unless all system connector cords and pin-plug cords are connected.

5 PART NAMES AND FUNCTIONS

POWER AMPLIFIER

① **PHONES jack**
When using headphones, plug them in here.
The sound from the speakers is cut when headphones are plugged in.

② **POWER switch**
When pressed once, the power is switched on and the power indicator LED lights up. This switch is usually left on.

③ **Power indicator LED**
This LED will flash for about 5 seconds until the speaker relay goes on, then it will light steadily. The LED will also flash when the protection circuit is activated. Should this occur, switch the power off, check the speaker connections, then switch the power on again.

TUNER-PREAMPLIFIER

① **FUNCTION button**
Use this to select the program source.
The selection changes in the order of TUNER, TAPE, CD, PHONO, and DAT.

② **TAPE MONITOR button**
Use this to listen to the sound of the tape. When used with a 3-head tape deck, the sound can be monitored while recording.

③ **SDB (Super Dynamic Bass) button**
Press this button for more powerful bass sound.

④ **CLOCK/DISPLAY button**
This button switches the display to the reception frequency or the function display and time display.

⑤ **Remote control sensor**
The remote control unit is pointed toward this sensor and operated.

⑥ **VOLUME control**
This control adjusts the overall volume. Turn clockwise (↻) to increase the volume, counterclockwise (↺) to decrease it.

⑦ **SYSTEM POWER button**
(This switch can switch on the power for the entire system.)
Press to switch the power on, press again to put the system into standby.

⑧ **TIMER STANDBY button**
Press this button to cause the timer to operate at the set time. When the timer has been set, pressing this button will light up the display's timer standby indicator (⏲), and pressing it again will switch off the standby indicator. The timer will not function when the standby indicator is off.

⑨ **CLEAR button**
This button is used to change the current time setting or the contents of the set timer.

⑩ **ENTER/NEXT button**
This is used when setting the timer, setting the current time, and when advancing to the next operation.

⑪ **TIMER button**
This is used to set the timer.

⑫ **MEMORY button**
This button is used when presetting FM, MW and LW stations.

⑬ **MONO/STEREO**
(FM stereo mute/mono) button
This button will not function when receiving MW/LW broadcasts.
(For FM reception)
STEREO (mute): Use this mode to receive FM broadcasts in stereo.
("AUTO" appears on the display.) The muting circuit is activated to cut the hiss noise between stations.
MONO: In this mode, FM broadcasts are received in monaural, regardless of whether they are broadcast in monaural or stereo.
Set to the mono mode if there is much noise in the stereo mute mode (with "AUTO" displayed) or if the signals are weak.

⑭ **BAND (FM/MW/LW selection) button**
With each press, the band is switched in the order of FM, MW, LW, FM, and so on.

⑮ **TUNING UP and DOWN buttons**
Use these to tune in FM, MW or LW stations and when setting the clock and timer.

⑯ **BASS control**
Use this control to adjust the bass.

⑰ **TREBLE control**
Use this control to adjust the treble.

⑱ **BALANCE control**
Use this control to adjust the balance of the volume between the left and right channels. The volume is the same for the left and right channels when the control is at the center.

CASSETTE DECK

① **Cassette tray: Deck 1**
The cassette tray opens outward when the OPEN/CLOSE button is pressed. Insert the cassette tape with the side on which the tape is exposed facing away from you. To close the cassette tray, press the OPEN/CLOSE button again.

② **DOLBY NR selection switch**
Use this switch to select the Dolby NR mode: off, B type or C type. During playback, set this switch to the same mode in which the tape was recorded.

③ **REV MODE switch**
Use this switch to set the reverse mode to one of the following modes: ⊐ (single side model), ⊃ (two-side model), or ⊂⊃ (continuous model).
Refer to Page 13 for details.

④ **COUNTER RESET button**
Press this button to reset the tape counter to 00.00.

⑤ **COUNTER 1/2 selection button**
Use this button to change the counter display between deck 1 and deck 2.

⑥ **TAPE SIZE setting button**
Set the time of the tape to the length of the tape being used.
Refer to Page 8 for details.

⑦ **DUBBING button**
Simply pressing this button permits dubbing (copying) a tape from deck 1 to deck 2.

⑧ **Cassette tray: Deck 2**
The cassette tray opens outward when the OPEN/CLOSE button is pressed. Insert the cassette tape with the side on which the tape is exposed facing away from you. To close the cassette tray, press the OPEN/CLOSE button again.

⑨ **POWER ON/STANDBY switch**
This switch turn the power of the cassette deck on and off.

⑩ **◀◀ (rewind) button: Deck 1**
Press this button to rewind the tape in deck 1. Also, if pressed during playback in the ▶ (forward) direction, the tape is rewound to the beginning of the currently playing selection. If pressed during playback in the ◀ (reverse) direction, the tape is forwarded to the beginning of the next selection (on the back side of the tape).

⑪ **▶▶ (fast-forward) button: Deck 1**
Press this button to fast forward the tape in deck 1. Also, if pressed during playback in the ▶ (forward) direction, the tape is fast forwarded to the beginning of the following selection. If pressed during playback in the ◀ (reverse) direction, the tape is rewound to the beginning of the currently playing selection (on the back side of the tape).

⑫ **▲ OPEN/CLOSE button: Deck 1**
Press this button to open and close the cassette tray. The button also works in the standby condition.

⑬ **◀ (reverse play) button: Deck 1**
Press this button to begin playback in the reverse direction on deck 1.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

⑭ **■ (stop) button: Deck 1**
Press this button to stop the moving tape in deck 1.

⑮ **▶ (forward play) button: Deck 1**
Press this button to begin playback in the forward direction on deck 1.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

⑯ **CD SRS (CD synchronized recording button)**
Use this button for simple CD synchronized recording.
Refer to Page 15.

⑰ **REC/REC MUTE**
(recording/recording mute) button
To record, press the REC/REC MUTE button and the ▶ play button only. If only the REC/REC MUTE button is pressed, the deck is set to the recording pause mode. If this button is pressed again, or pressed during recording, the recording mute mode is set for approximately 5 seconds, after which the deck is set to the recording pause mode.

Recording pause mode
When the play button of the CD player is pressed in the recording pause mode, the CD begins to be recorded.

⑱ **◀◀ (rewind) button: Deck 2**
Press this button to rewind the tape in deck 2. Also, if pressed during playback in the ▶ (forward) direction, the tape is rewound to the beginning of the currently playing selection. If pressed during playback in the ◀ (reverse) direction, the tape is forwarded to the beginning of the next selection (on the back side of the tape).

⑲ **▶▶ (fast-forward) button: Deck 2**
Press this button to fast forward the tape in deck 2. Also, if pressed during playback in the ▶ (forward) direction, the tape is fast forwarded to the beginning of the following selection. If pressed during playback in the ◀ (reverse) direction, the tape is rewound to the beginning of the currently playing selection (on the back side of the tape).

⑳ **REC LEVEL (recording level) control**
Use this control to set the recording level.

㉑ **◀ (reverse play) button: Deck 2**
Press this button to begin playback in the reverse direction on deck 2.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

㉒ **■ (stop) button: Deck 2**
Press this button to stop the moving tape in deck 2.

㉓ **▶ (forward play) button: Deck 2**
Press this button to begin playback in the forward direction on deck 2.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

㉔ **▲ OPEN/CLOSE button: Deck 2**
Press this button to open and close the cassette tray. The button also works in the standby condition.

- Deck 1 is for playback only and deck 2 is for recording and playback.
- After the power cord is plugged into an outlet, a mechanical sound is produced from the cassette deck when the power switch is pressed on the first time only. This is the sound of the cassette mechanism being set to the proper operating position, and is not a problem with the deck.

CD PLAYER

❶ **Disc tray**
Compact discs are loaded to the disc tray.

❷ **II Pause button**
Press this button to stop CD play temporarily.
Press the play button to resume CD play.

❸ **■ Stop button**
Press this button to stop CD play.

❹ **▶ Play button**
Press this button to start playing the disc. If pressed when the disc tray is open, the disc tray closes and playback begins. Pressing this button in the standby mode automatically switches on the power and plays the disc.

❺ **▲ OPEN/CLOSE button**
Press this button to open the disc tray. Press once to open the disc tray forward, then press again to close the disc tray. This button also operates in the standby mode.

❻ **POWER ON/STANDBY switch**
Press this to switch the CD player's power on and off.

❼ **TAPE A/B button**
Press this button during editing to switch the display between the display of program contents for tape side A and the display for tape side B.

❽ **EDIT button**
Press this button for edited recording (dividing the tracks to be recorded to fit onto sides A and B of a tape according to the length of the tape).

❾ **Display**
This displays the time and the settings of the various buttons.

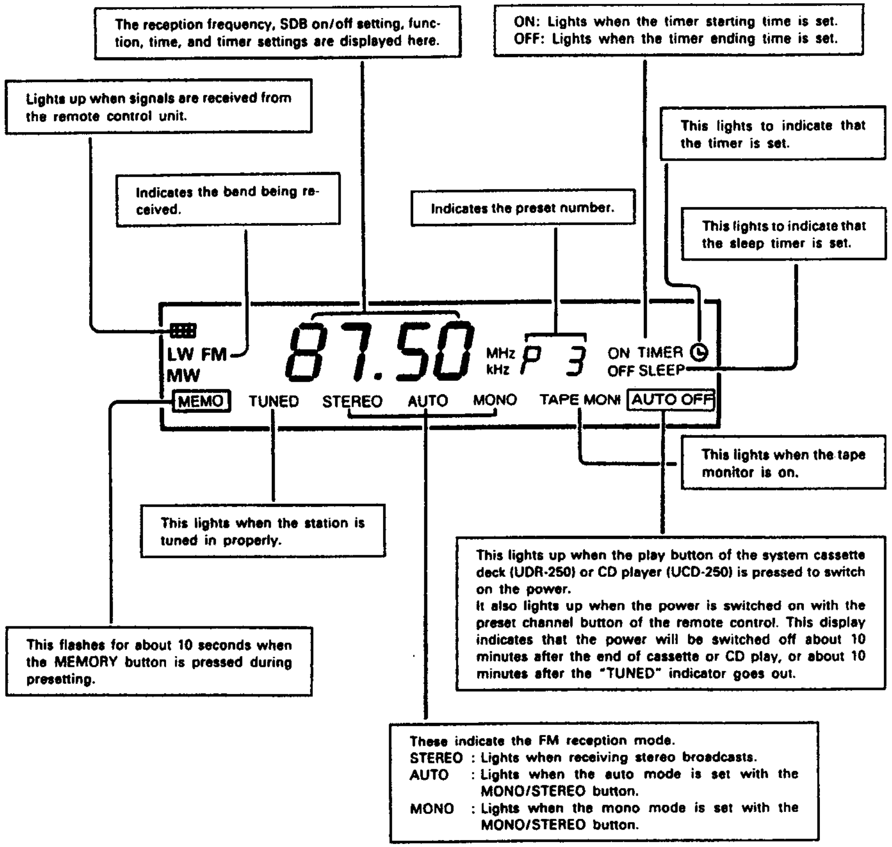
❿ **RANDOM button**
Press this button to play the disc tracks in random order.

⓫ **REPEAT button**
Press this button for repeat play.

⓬ **⏮◀◀ (automatic/manual search backward button)**
Press this button to move the pickup back to the beginning of the desired track.
Press in the play, stop, or pause mode to move back a number of tracks equal to the number of times the button is pressed.

⓭ **▶▶⏭ (automatic/manual search forward button)**
Press this button to move the pickup forward to the beginning of the desired track.
Press in the play, stop, or pause mode to move forward a number of tracks equal to the number of times the button is pressed.
* The automatic search function is set if button ⓬ or ⓭ is released within 0.5 seconds, and the manual search function is set if the button is held in for more than 0.5 seconds.
* Buttons ⓬ and ⓭ do not function in the pause mode.

TUNER-PREAMPLIFIER DISPLAY



The reception frequency, SDB on/off setting, function, time, and timer settings are displayed here.

ON: Lights when the timer starting time is set.
OFF: Lights when the timer ending time is set.

Lights up when signals are received from the remote control unit.

This lights to indicate that the timer is set.

Indicates the band being received.

Indicates the preset number.

This lights to indicate that the sleep timer is set.

This lights when the tape monitor is on.

This lights when the station is tuned in properly.

This lights up when the play button of the system cassette deck (UDR-250) or CD player (UCD-250) is pressed to switch on the power.
It also lights up when the power is switched on with the preset channel button of the remote control. This display indicates that the power will be switched off about 10 minutes after the end of cassette or CD play, or about 10 minutes after the "TUNED" indicator goes out.

This flashes for about 10 seconds when the MEMORY button is pressed during presetting.

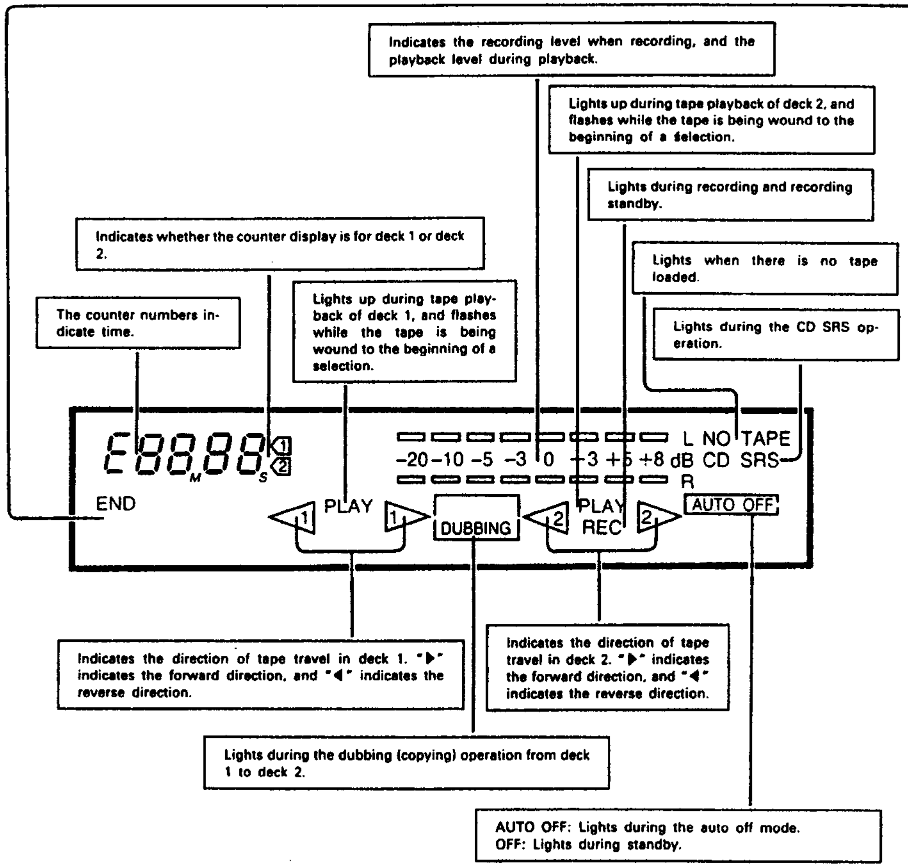
These indicate the FM reception mode.
STEREO : Lights when receiving stereo broadcasts.
AUTO : Lights when the auto mode is set with the MONO/STEREO button.
MONO : Lights when the mono mode is set with the MONO/STEREO button.

Trap Door

- To open the trap door, press area of the PUSH OPEN △ indication at the upper right of the panel. When the door lock is released, open the door with your hand.
- To close the trap door, press the indicated area at the upper right of the panel and lock the door.

NOTE:
- The "◷" of the timer standby display will not light up unless the current time and the timer have been set.
- When the FUNCTION button is used to switch the function while "AUTO OFF" is lit, the auto on/off mode is cancelled and the display goes out.
Also note that when the play button of one of the components (CD player or cassette deck) is pressed while "AUTO OFF" is lit, causing the function to change, the auto on/off mode will not be cancelled and the display will remain lit.

CASSETTE DECK DISPLAY



Indicates the recording level when recording, and the playback level during playback.

Lights up during tape playback of deck 2, and flashes while the tape is being wound to the beginning of a selection.

Lights during recording and recording standby.

Indicates whether the counter display is for deck 1 or deck 2.

Lights when there is no tape loaded.

The counter numbers indicate time.

Lights up during tape playback of deck 1, and flashes while the tape is being wound to the beginning of a selection.

Lights during the CD SRS operation.

Indicates the direction of tape travel in deck 1. "▶" indicates the forward direction, and "◀" indicates the reverse direction.

Indicates the direction of tape travel in deck 2. "▶" indicates the forward direction, and "◀" indicates the reverse direction.

Lights during the dubbing (copying) operation from deck 1 to deck 2.

AUTO OFF: Lights during the auto off mode.
OFF: Lights during standby.

The direction of tape travel indicators also serve to indicate whether a cassette tape is loaded.
These indicators do not light up when the tape is stopped or when there is no cassette tape loaded.

USING THE TAPE COUNTER

1. Tape Counter Display

- The tape counter indicates the elapsed time of the running tape in minutes and seconds.

(Minutes) (Seconds)

- The counter is reset to 00.00 when the tape is ejected and loaded, and by the COUNTER RESET button.
- Making a memo of the contents of a recording and the range of the counter numbers while you are recording or playing back a tape will be convenient when you search for a portion of the tape you would like to listen to or when you search for the next portion you would like to record.

2. Tape Size Selector

- Match the tape size with the tape being used.
- Press the TAPE SIZE button until the desired tape size is displayed, then press the button again while the tape size is being displayed to set it. With each press of the button, the display will change according to the following cycle.

→ C46 → C50 → C54 → C60 → C74 → C90 → C100 → C120 → C54L ← C50L ← C46L ←

※ C46L, C50L, and C54L indicate large-hubbed cassettes.
※ Only values included in the display can be set.

3. END Display

This display indicates that the tape is reaching the end during recording or playback.

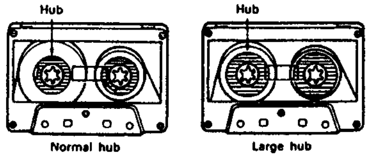
- Match the tape size with the tape you are going to use.
- The END indicator will start flashing when the remaining time to the end of the tape is about 5 minutes. (Note that this will be the case only when the TAPE SIZE setting and the length of the tape are in agreement. When the tape used and the TAPE SIZE setting differ, a large error may arise in the time at which the END indicator starts flashing.)
- When the tape has been recorded or played back to its end, the flashing of the END indicator will change to steady lighting.

※ Note that this indicator is only a guide and its operation will vary according to the size of the hub diameter of the tape as well as with differences of tape thickness, so that the END indicator might not light in some cases.

NOTE:

This deck's linear tape counter has been set for the following cassette tape lengths: C46, C50, C54, C60, C74, C90, C100, C120, C46L, C50L, and C54L. (L indicates large-hubbed cassettes.)
Using a tape that lies outside of this range, or a tape with a different length than the displayed lengths, will result in error. When using a tape that is not included in the TAPE SIZE selection, select the tape size closest to the length of the tape to be used. (This will reduce the error.)
The linear tape counter is not accurate like a clock. The thickness of the tape will differ depending on the type of tape used (tape position and time), and so there will be some error introduced. Error also arises from the difference between tapes with smaller and larger hubs.

- Large hubs are ones with a diameter of about 27 mm. Note that if the hub is larger than this, there will be a large error in indicating the tape travel time.



Dolby noise reduction and HX PRO headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX PRO originated by Bang & Olufsen.
"DOLBY", the double-D symbol ◻◻ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

CD PLAYER DISPLAY

Tape type and remaining time display
During the editing operation, C-00 lights and the tape time is displayed.

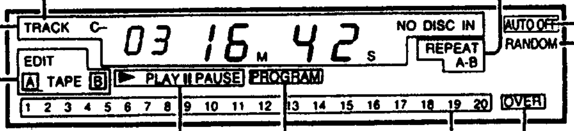
Track number display
00 is displayed when the disc data cannot be read properly.
When a disc is loaded:
- The total number of tracks is displayed in the stop mode.
- The track number is displayed in the play and program modes.
- [[or]] is displayed when the innermost or outermost section of the disc is reached in the manual search mode.

Time display
0000 is displayed when the disc data cannot be read properly.
When a disc is loaded:
- The elapsed playing time is displayed in the stop mode.
- The elapsed time for the track currently playing is displayed in the play and pause modes.
- The elapsed time for the programmed tracks is displayed in the program mode.

The indicators switch as follows when the REPEAT button is pressed in the play mode:

First press:	REPEAT (single track repeat) The repeated track number lights on the music calendar.
Second press:	REPEAT (all tracks repeat) The track numbers of the tracks on the disc light.
Third press:	REPEAT A-
Fourth press:	REPEAT A-B
Fifth press:	No display

- When track 21 or higher is repeated in 1-track repeat, the TRACK number flashes.


TRACK
C-
03 16 M 42 S
NO DISC IN
AUTO OFF
REPEAT A-B
RANDOM
EDIT
A TAPE B
▶ PLAY II PAUSE
PROGRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
OVER

▶ PLAY lights when the disc is playing, and II PAUSE lights when in the pause mode.

PROGRAM lights during the programmed selection mode.

This lights when there are 21 or more tracks on the disc.

This lights when the RANDOM button is pressed.

AUTO OFF: Lights during the auto off mode.
OFF: Lights when the power is switched off.

During the editing operation, EDIT A TAPE lights up, the remaining time for side A of the tape is indicated on the time section of the display, the track numbers set for side A light on the calendar section of the display, while the track numbers set for side B flash. When the TAPE A/B button is pressed, A goes off, B lights, and the remaining time and track numbers set for side B are indicated in the same way.

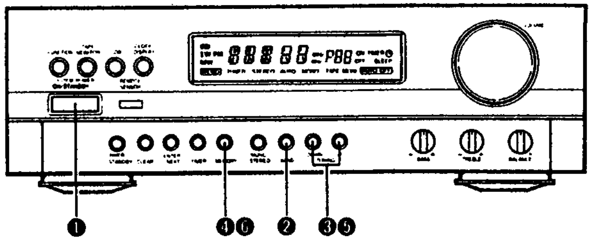
Music calendar display
This indicates the track numbers on the disc to a maximum of 20.
The track numbers go off after the corresponding tracks are played.
In the program mode, the track numbers of the programmed tracks are indicated to a maximum of 20.
All track numbers from 1 to 20 light when the disc data cannot be read properly.

- NO DISC lights on the display if no disc is loaded, or if the disc is loaded upside-down or is heavily scratched or dirty.

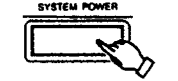
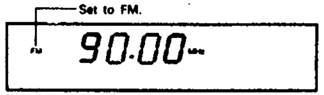
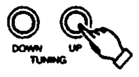
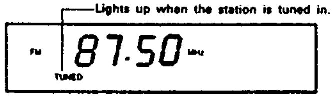
6 LISTENING TO RADIO BROADCASTS

(Check that connections are proper, referring to Page 5)

TUNING

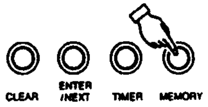
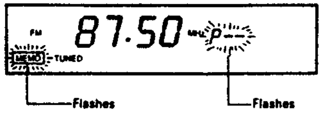
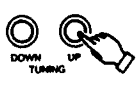
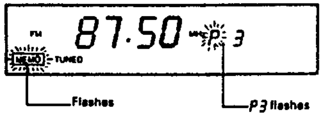
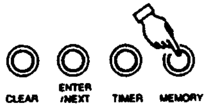
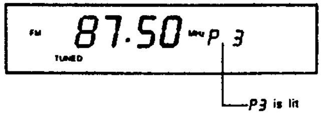


Example: Tuning to 87.50 MHz, FM

1	Set the VOLUME control to the minimum position, then press the SYSTEM POWER button.	 SYSTEM POWER	
2	Select the FM band with the BAND button.		 Set to FM. FM 90.00 MHz
3	Use the UP and DOWN buttons to set the frequency to 87.50 MHz.	 DOWN UP TUNING	 Lights up when the station is tuned in. FM 87.50 MHz TUNED

Presetting MW, LW and FM Stations

Example: Presetting the (currently tuned) FM 87.50 MHz to preset number 3

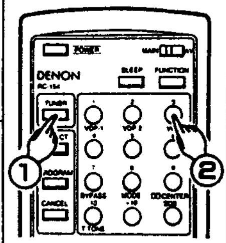
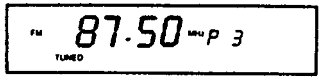
4	Press the MEMORY button. MEMO flashes for 10 seconds.	 CLEAR ENTER /NEXT TIMER MEMORY	 FM 87.50 MHz P MEMO TUNED Flashes Flashes
5	Use the UP and DOWN buttons to call up the number to which you want to preset the station. Or, directly press the number buttons on the remote control unit. The preset number will flash.	 DOWN UP TUNING	 FM 87.50 MHz P 3 MEMO TUNED Flashes P3 flashes
6	Press the MEMORY button while MEMO is flashing.	 CLEAR ENTER /NEXT TIMER MEMORY	 FM 87.50 MHz P 3 TUNED P3 is lit

Up to 30 MW, LW and FM stations can be preset at random using this procedure.

Auto Tuning
- When the TUNING buttons are pressed, the frequency changes in steps of 50 kHz for FM, 9 kHz for MW and 1 kHz for LW.
- If the TUNING UP or DOWN button is held in for more than 1 second, the frequency continues to change when the button is released. The next station is tuned in automatically and the tuning stops there. Note that tuning will not stop if the antenna input is weak and the TUNED indicator does not light. To stop the auto tuning, press the UP or DOWN button again.

Listening to Preset Stations

Example: Listening to the FM station preset at number 3

1	Press the TUNER button on the remote control unit.	 DENON RC-154 POWER SLEEP FUNCTION TUNER PROGRAM CANCEL BYPASS MODE T.TONE ① ②	
2	Press button "3" on the remote control unit.		

FM Stereo Reception

- When the MONO/STEREO button is pressed (which lights the AUTO and MONO indicators) and an FM stereo broadcast is received, the STEREO indicator lights and the station is received in stereo. If the MONO indicator is lit by pressing the MONO/STEREO button, the STEREO indicator goes off and the station is received in monaural.

Notes on Presetting

- When an FM station is preset, the auto or monaural mode is also set, so check the display before presetting the station.
- If a station is preset to a number at which another station has previously been preset, the previous station is cleared and the new station is preset.
- If the power cord is unplugged, the preset memory is not cleared immediately, but will be cleared if the cord is left unplugged over a long period. Should this happen, preset the stations again.

7 USING THE TIMER

Setting the Timer

- Be sure to set the current time.
- Regular timer: The power can be switched on and off once every day at the same time. (Wake-up music)
- Sleep timer: The power can be set to turn off in up to 60 minutes in steps of 10 minutes using the remote control unit. (Bedtime music)

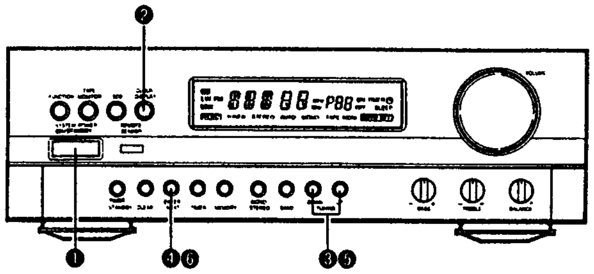
Be sure to preset stations before setting the timer.
Refer to "Presetting MW, LW and FM Stations" on Page 9.

- Turn the standby switch off when not using the timer.

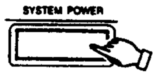
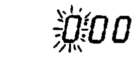
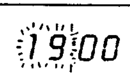
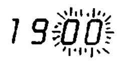
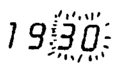
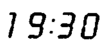
Power Failure

Should a power failure occur or if the power cord becomes unplugged from the power outlet, 00:00 or the time at which the power failed will flash on the time display. If this happens, reset the current time.
(Reset the current time and timer settings. If 00:00 was displayed, also reset the stations preset on the tuner.)
The standby mark starts flashing if there is a power failure or the power cord is unplugged while the standby mark is lit. If this happens, reset the time and the timer. (If the display reads 00:00, also reset the tuner's preset channels.)
To make the standby mark stop flashing, press the TIMER button, then press the TIMER or CLEAR button while "FUNC" is displayed.

Setting the Current Time (A 24-hour clock display is used.)

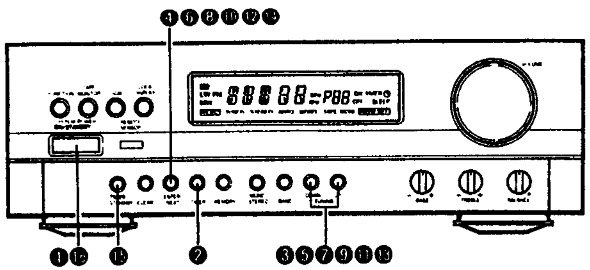


Example: Setting to 19:30 (7:30 p.m.)

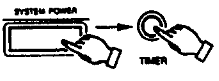
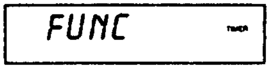
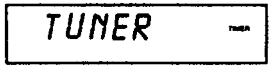
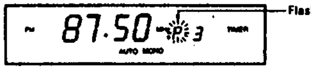
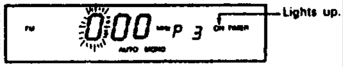
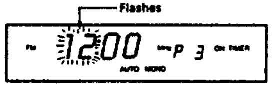
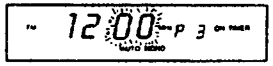
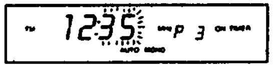
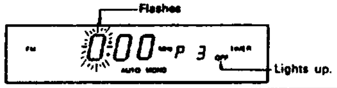
1	Press the SYSTEM POWER button.			
2	Hold in the CLOCK/DISPLAY button for 3 seconds or longer.	CLOCK/ DISPLAY		The hour's place flashes. (All places flash if the time has already been set.)
3	Set the hours with the UP and DOWN buttons.	DOWN UP TUNING		The set places flash.
4	Press the ENTER/NEXT button.			The minutes' places flash.
5	Set the minutes with the UP and DOWN buttons.	DOWN UP TUNING		The set places flash.
6	Press the ENTER/NEXT button at the sound of a time signal. The time display lights steadily and the clock starts keeping the time.			The display lights steadily and the clock starts to count from 0 seconds.

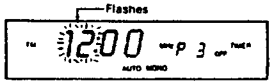
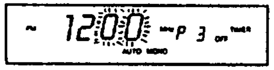
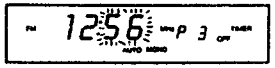
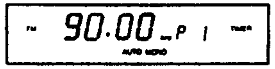
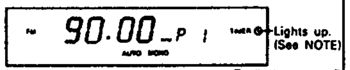
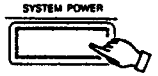
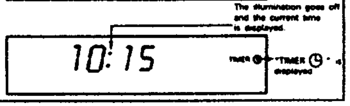
Setting the Timer

(Preset the MW, LW and FM stations in advance)


❹❻❽❿⓬⓮
❶⓰
⓯
❷
❸❺❼❾⓫⓭

Example: Setting the timer to turn on at 12:35 and off at 12:56.
90.00 MHz FM is being received on preset number "1".
87.50 MHz FM is set to preset number "3".

1	Press the SYSTEM POWER button.		
2	Press the TIMER button.		
3	Press the UP and DOWN buttons to display "TUNER".		
4	Press the ENTER/NEXT button.		 87.50 P 3 Flashes
5	Press the UP and DOWN buttons to set the preset number.		
6	Press the ENTER/NEXT button.		 0:00 P 3 Lights up.
7	Use the UP and DOWN buttons to set the hour at which the timer is to switch on.		 12:00 P 3 Flashes
8	Press the ENTER/NEXT button.		
9	Use the UP and DOWN buttons to set the minutes at which the timer is to switch on.		
10	Press the ENTER/NEXT button.		 0:00 P 3 Flashes Lights up.

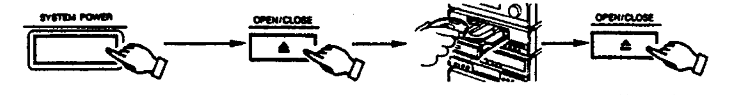
11	Use the UP and DOWN buttons to set the hour at which the timer is to switch off.		 12:00 P 3 Flashes
12	Press the ENTER/NEXT button.		
13	Use the UP and DOWN buttons to set the minutes at which the timer is to switch off.		
14	Press the ENTER/NEXT button.		
15	Press the TIMER STANDBY button.		 90.00 P 1 Lights up. (See NOTE)
16	Press the SYSTEM POWER button.		 10:15 The illumination goes off and the current time is displayed. "TIMER ◷" is displayed

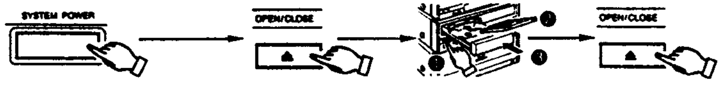
- When the TIMER STANDBY button is pressed and the "◷" mark is lit, the timer will function at the same times each day.
- To switch off the timer, press the TIMER STANDBY button and turn off the "◷" mark.

NOTE:

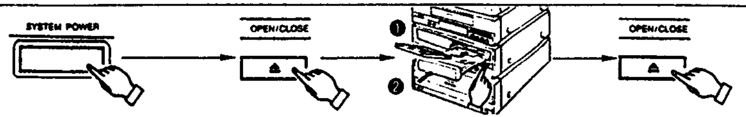
The timer standby mark "◷" will not light unless the current timer has been set. Should this be the case, set the current time, then press the TIMER STANDBY button.

Ways to Use the Timer

	Example 1: Waking up to the music of a compact disc.		
1	 Press the tuner-preamplifier's SYSTEM POWER button to switch on the power. → Press the CD player's OPEN/CLOSE button to open the tray. → Set the compact disc in the tray. → Press the OPEN/CLOSE button again to close the tray.		
2	Press the tuner-preamplifier's TIMER button.		FUNC
3	Press the UP and DOWN buttons of the tuner-preamplifier to display "CD".	DOWN UP TUNING	CD
4	Follow steps 6 to 16 under "Setting the Timer" on Page 11.		

	Example 2: Waking up to the music of a cassette tape.		
1	 Press the tuner-preamplifier's SYSTEM POWER button to switch on the power. → Press the cassette deck's OPEN/CLOSE button to open the tray. → Load the cassette tape. → Press the OPEN/CLOSE button again to close the tray.		
2	Press the tuner-preamplifier's TIMER button.		FUNC
3	Press the UP and DOWN buttons of the tuner-preamplifier to display "TAPE".	DOWN UP TUNING	TAPE
4	Follow steps 6 to 16 under "Setting the Timer" on Page 11.		

- The tape will be played back in the direction indicated by the tape direction indicator in the tape deck on the side of the tape counter display.

	Example 3: Unattended recording of radio broadcasts ("air checks")		
1	 Press the tuner-preamplifier's SYSTEM POWER button to switch on the power. → Press the deck 2 OPEN/CLOSE button to open the tray. → Load the cassette tape to which you will record. → Press the OPEN/CLOSE button again to close the tray.		
2	Press the tuner-preamplifier's TIMER button.		FUNC
3	Press the UP and DOWN buttons of the tuner-preamplifier to display AIR.CH.	DOWN UP TUNING	AIR.CH
4	Follow steps 4 to 16 under "Setting the Timer" on Page 11.		

- Timer recording starts in the direction indicated by the tape direction indicator of deck 2.
- Check that the tape direction and REV MODE switch settings are as desired.
- The section of leader tape at the beginning of the tape cannot be recorded. To avoid missing the beginning of the recording, set the starting time to about 1 minute before the program is scheduled to start.

Checking the Timer Settings

To check the timer settings, switch on the power of the tuner-preamplifier, press the TIMER button, then press the ENTER/NEXT button. The timer start mode, reception band, preset number, on time, and off time are displayed in order each time the ENTER/NEXT button is pressed. One more press returns the display to the reception frequency.
When the on time and off time have not been set, 0000 flashes and there is no transition to the next display.

Changing the Timer Settings

When the timer setting operation is repeated, the previous settings are deleted and the new settings are set.

Deleting the Timer Settings

The timer settings can be cleared by pressing the TIMER button and then while FUNC is being displayed, pressing the TIMER button again or pressing the CLEAR button.

Note about the Set Timer

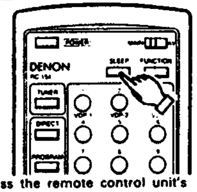
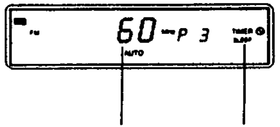
If the set time of the timer is reached while the power is on, the timer settings will take over and there will be a switch to the function that has been set on the timer.

Cancelling the Timer

Press the TIMER STANDBY button and the "◷" mark will go off.

Setting the Sleep Timer

(Use the remote control unit for these operations.)
Example: Setting the power to switch off in 50 minutes.

	Currently receiving 87.50 MHz, FM.	87.50	
1	 Press the remote control unit's SLEEP button.	 "60" is displayed. "SLEEP" appears and flashes for 5 seconds.	
2	Press the SLEEP button again while "SLEEP" is flashing.	"50" is displayed, and the frequency display (87.50) reappears after 5 seconds.	The power is switched off after 50 minutes.

- If the sleep timer and regular timer settings overlap, the sleep timer is given priority.
- Do not press the TIMER STANDBY button after the power has been switched on with the timer. If this is done, the timer will not function properly.
- If the same time is set for the on time and off time, the power will not be switched on even when the "STANDBY" indicator is lit.
- If the timer is set for an AM or FM station and the on time of the timer is reached while listening to another station, the tuner switches to the station which was set with the timer.
- If the display is not normal, unplug the power cord, then holding in the MEMORY button and the BAND button, plug the power plug into the power outlet. This will reset the tuner to the initial settings and provide a proper display. If this is done, reset the preset stations, current time, and timer settings.

Cancelling the Sleep Timer

- To cancel the timer while it is operating in the sleep mode, press the SLEEP button, and while "SLEEP" is flashing, press the CLEAR button on the tuner-preamplifier.
- Press the SLEEP button and continue to press it until the power is switched off. When the power is switched off the sleep timer will be cancelled.

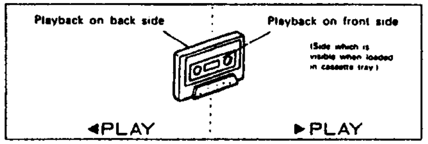
8 CASSETTE DECK

Before Recording and Playback

Auto Reverse

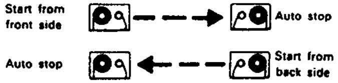
This deck is equipped with an auto reverse mechanism, so cassette tapes can be played and recorded on both sides or played continuously without having to turn them over.

■ **Direction of tape travel**
This deck has two play buttons, one for the forward direction (front side) and another for the reverse direction (back side). The side being played can be changed during playback by pressing the opposite play button.

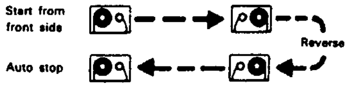


■ **Reverse mode**
Set the reverse mode switch (REV MODE) as follows:

- **Single-side recording/playback mode (⇄)**
In this position, only the front side or the back side of the cassette tape is played or recorded. (The tape stops automatically when the end of that side is reached.)

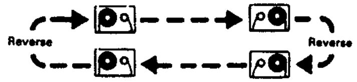


- **Two-side recording/playback mode (⊃)**
In this position, when the end of the front side is reached, recording or playback automatically switches to the back side and continues from there. (The tape stops automatically when the end of the back side is reached.)



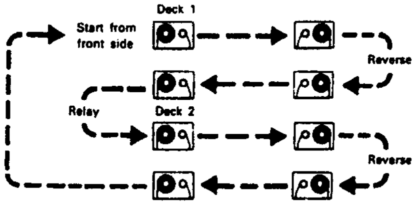
- **Continuous playback mode (↻)**
When tape is loaded in only one of the decks, playback continues until the STOP button is pressed.

- If you start playing or recording from the back side, the tape will stop automatically at the end of the back side.



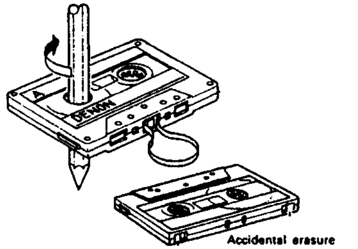
- **Relay playback mode (↻)**
When tapes are loaded in both decks, playback continues from deck 1 onto deck 2, and then back again, as shown in the diagram at the right.

- The reverse recording/playback mode (⊃) is set automatically during recording.



Cassette Tapes

■ **Handling Precautions**
- C-120 cassette tapes
Avoid using 120-minute cassette tapes, since they have extremely thin tape which tends to become wound onto the capstans or pinch rollers.
- Tape slack
If the tape is slack, it may become wound onto mechanism parts or otherwise damaged. Take up the slack with a pencil before loading the cassette.


Accidental erasure prevention tab for side A
Accidental erasure prevention tab for side B

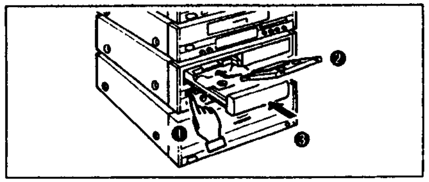
■ **Storage Precautions**
- Avoid storing in the following places:
  - Hot, humid places
  - Dusty places
  - Places exposed to direct sunlight
  - Near magnetic fields (TVs, speakers, etc.)
- Store the cassette tape in a case equipped with stoppers to keep the tape from coming slack.

■ **Protecting Cassette Tapes From Being Erased Accidentally**
- Cassette tapes are equipped with accidental erasure prevention tabs. To protect recorded tapes from being erased accidentally, use a screwdriver, etc., and break these tabs off.
- To record on a cassette tape whose accidental erasure prevention tabs have been broken off, place a pieced of cellophane tape over the hole.

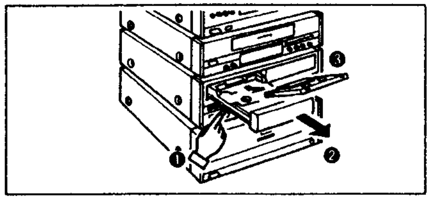
Before Operating

Loading and Unloading Cassette Tapes (Common for Deck 1 and Deck 2)

- **Loading**
  ① Press the OPEN/CLOSE button (⏏) to open the cassette tray.
  ② Set the tape in the cassette tray with the open side (on which the tape is exposed) facing away from you.
  ③ Press the OPEN/CLOSE button again to close the tray.



- **Unloading**
  ① Press the STOP button (■).
  ② Press the OPEN/CLOSE button (⏏) to open the cassette tray.
  ③ Remove the cassette tape.



Check the following before recording or playing cassette tapes:
1. Is the head dirty?...
   The sound quality will be poor if the head is dirty. Refer to Page 21.
2. Are the accidental erasure prevention tabs broken off?...
   Recording is not possible if these tabs are broken off. Refer to Page 13.

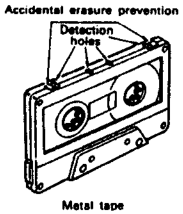
NOTE:
- Load the cassette tape on an angle with the open side facing away from you. Loading it in the opposite direction can cause damage.
- Do not press the OPEN/CLOSE button during playback or recording. Always press the STOP button before pressing the OPEN/CLOSE button.

Using the Tape Counter (Linear Tape Counter)
- This counter displays the elapsed running time of the tape in minutes and seconds.
- The counter can be reset to 00.00 by pressing the COUNTER RESET button. Or, the counter will also be reset when the tape is loaded or unloaded.
- Making a memo of the contents of a recording and the range of the counter numbers while you are recording or playing back a tape will be convenient when you search for a portion of the tape to which you would like to listen.

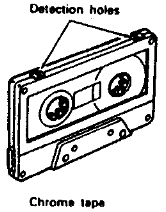
NOTE:
- This deck's linear tape counter has been set for the following cassette tape lengths: C46, C50, C54, C60, C74, C90, C100, C120, C46L, C50L, and C54L. (L indicates large-hubbed cassettes.) Using a tape that lies outside of this range, or a tape with a different length than the displayed lengths, will result in error. When using a tape that is not included in the TAPE SIZE selection, select the tape size closest to the length of the tape to be used. (This will reduce the error.)
- The linear tape counter is not accurate like a clock. The thickness of the tape will differ depending on the type of tape used (tape position and time), and so there will be some error introduced. Error also arises from the difference between tapes with smaller and larger hubs, and shows up in the remaining tape display (END mark).

Auto Tape Selector Mechanism

This deck is equipped with an auto tape selector mechanism which uses the detection holes in the cassette halves to automatically set the recording bias and equalization best suited for that type of tape.
- Do not use ferrichrome tapes.
- Use metal tapes equipped with detection holes. (Use of the old type of metal tape without detection holes will result in the sound having an emphasized treble region.)



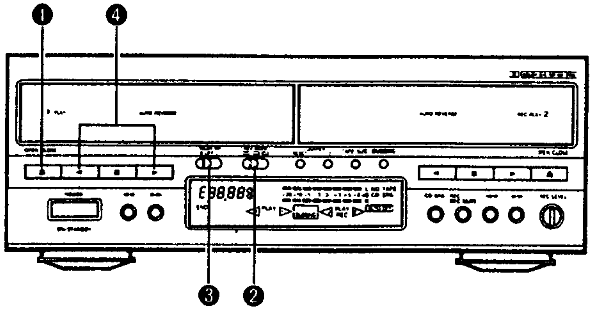
Metal tape



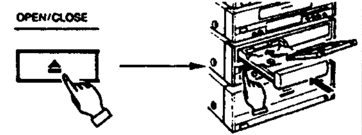
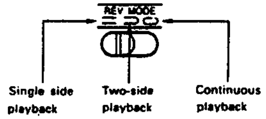
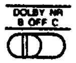
Chrome tape

9 PLAYING CASSETTE TAPES

(Single Side Playback, Two-Side Playback, and Continuous Playback)



- Functions common for deck 1 and deck 2.
- When operating from the remote control unit, the operation switches between deck 1 and deck 2 each time the DECK 1/2 button is pressed. The counter indicator (1 or 2) lights for the selected deck.

1	Press the OPEN/CLOSE button, and load a recorded tape into the tray. Refer to Page 14.	 OPEN/CLOSE
2	Set the REV MODE switch. Refer to Page 13.	 REV MODE Single side playback Two-side playback Continuous playback
3	Set the DOLBY NR switch. Refer to Page 6 ❼.	 DOLBY NR B OFF C Set to B or C (as indicated on the tape) for tapes recorded with Dolby NR.
4	Press the play button (▶ or ◀).	Playback starts in the direction of the button pressed.

Loading the tape

The tape can be loaded easily by inserting it at an angle.

Removing the tape

The tape can be removed easily by lifting it out toward yourself at an angle.

Press the stop button ■ to stop the playback.

PLAYING CASSETTE TAPES

Using the MS (Music Search) Function and the Music Search Display

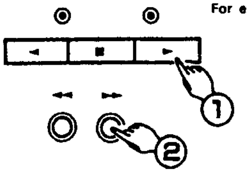
Using the MS (Music Search) Function

■ **Use this function to move to the beginning of the following section or return to the beginning of the current selection.**

① Press ▶ or ◀.

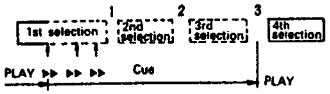
② Press ▶▶ or ◀◀.

- In the rewind direction, playback starts from the beginning of the selection which is currently playing, and in the fast-forward direction, playback starts from the beginning of the following selection.



The tape skips by a number of selections equal to the number of times the ▶▶ or ◀◀ button is pressed.

For example:



- For the normal fast-forward or rewind operations, press the stop button ■ before pressing the ▶▶ or ◀◀ button.

Display During the Music Search Operation

During the music search operation, the number of selections being skipped is indicated on the tape counter, and this number decreases each time a blank section is detected (for example, 3 → 2 → 1).

- When skipping back to a previous selection

P-03 ←Number of tracks to be skipped

↑ This lights when skipping backward

- When skipping ahead to a following selection

P 05 ←Number of tracks to be skipped

Adjustment of the Recording Input Level Control

Too high a recording level will result in a recording which has a high degree of distortion, whereas too low a recording level will result in a high degree of noise. Adjustment of the recording input level is of the utmost importance in making a well-balanced recording.

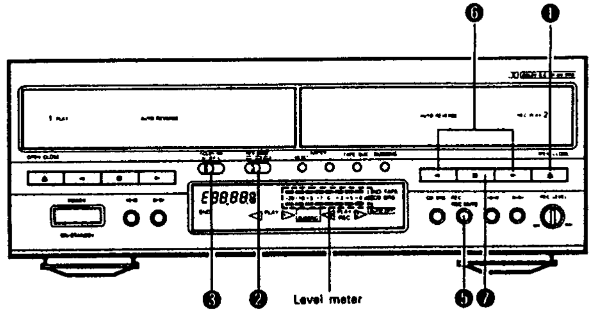
Guide to Recording Input Levels

Type I (normal) tapes	0 dB
Type II (CrO_2) tapes	+3 dB
Type IV (metal) tapes	+3 dB

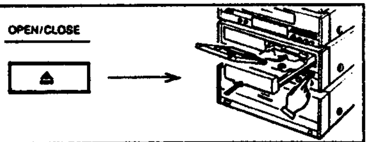
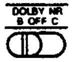
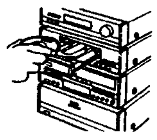
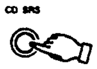
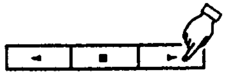
NOTE:

The optimum recording level will actually differ depending on the source and the type of tape, and so a trial recording should be made.

10 RECORDING CASSETTE TAPES



- The positions of the VOLUME and tone controls do not affect the sound being recorded.

1	Press the OPEN/CLOSE button ⏏ for deck 2 and load the tape to which you will record. Refer to Page 14.	OPEN/CLOSE 	
2	Set the REV MODE switch to ⇄ or ⊃. Refer to Page 13.	Single-side recording Two-side (reverse) recording.	
3	Set the DOLBY NR switch. Refer to Page 6 ❸.	DOLBY NR B OFF C 	Set to B or C to record with Dolby Noise Reduction.
4	Recording from the radio	Recording from a VDP or DAT	Recording from a CD player
	Press the BAND selector button. ↓ Select the station you wish to record. (Refer to Page 9.)	Press the tuner-preamplifier's FUNCTION button and select PHONO or DAT. ↓ Start playback on the VDP or DAT.	 Set the disc in the CD player. (Refer to Page 16.)
5	Press the REC/REC MUTE button.	REC/ REC MUTE The REC (recording) indicator lights.	(5) CD SRS  Press the CD SRS button. The CD SRS indicator lights and recording starts.
6	Press the ▶ or ◀ button. (Recording starts)		
7	To stop recording, press the stop button.		

Adjust the recording level.

Recording level control
MIN
MAX
REC LEVEL

Adjust the lighting condition of the level meter with the recording level control. Refer to the section on Page 15.

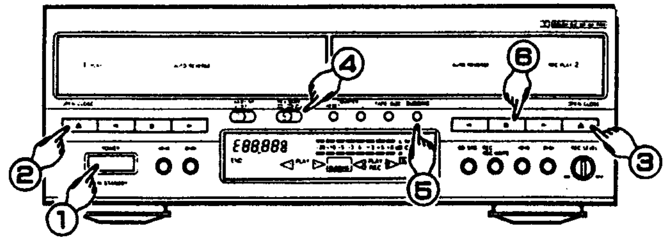
- When the CD SRS button is pressed, a 7-second blank portion is automatically created before recording starts.

RECORDING CASSETTE TAPES

- **Making a Synchro Dubbing (Copy)**

Synchro dubbing (tape copying) can be made at regular speed from deck 1 to deck 2.

☞ Press the SYSTEM POWER button of the tuner-preamplifier.



① Press the SYSTEM POWER button of the tuner-preamplifier or press the POWER ON/STANDBY button of the deck.
② Press the OPEN/CLOSE (⏏) button and load the tape to be played back in deck 1.
③ Press the OPEN/CLOSE (⏏) button and load the tape to be recorded back in deck 2.
④ Set the reverse mode with the REV MODE switch.
(REV MODE ⊐ : ⊃ : ⊂⊃)
⑤ Press the DUBBING (synchro dubbing) button. Note that if the POWER ON/STANDBY button of the deck is pressed to switch on the power, the power of the tuner-preamplifier will automatically be switched on when the DUBBING button is pressed. You will be able to hear the audio normally.
⑥ To stop the dubbing, press the stop button (■) or press the DUBBING button.
The tape will automatically stop when it reaches the end and the synchro dubbing mode will be cancelled.

- Recording level during synchro dubbing
  During synchro dubbing, the recording is made at the same level as the playback tape of deck 1, regardless of the position of the recording level control. Note that when the recording tape and the playback tape are of different types, the recording level might be different and so synchro dubbing should be done with the same type of tape if possible.

- Dolby NR mode during synchro dubbing
  The Dolby NR system is automatically disengaged from the panel switch during synchro dubbing (even though the display does not change) and the tape is recorded with the Dolby NR mode of the playback tape.

- You can listen to the sound of another source while synchro dubbing.
  Changing the source with the FUNCTION button or the CD play button will not interrupt the synchro dubbing.

- When synchro dubbing, both decks begin running in the forward direction (from the A side).

- The synchro DUBBING button is effective in starting the operation only when both tapes are in the stopped condition.

- The following buttons do not function during the synchro dubbing operation: forward play ▶, reverse play ◀, fast forward ▶▶, rewind ◀◀, and REC/REC MUTE.

- To ensure complete reproduction, use the same length of recording tape as the playback tape, and rewind both tapes to the beginning of side A before starting the dubbing operation.

- By setting the REV MODE switch to the ⊃ or ⊂⊃ position, when the playback tape of deck 1 reverses at the end of the tape on side A, the deck 2 tape will reverse at the same time and dubbing can continue on side B.

11 PLAYING CDs

Compact Discs

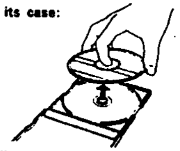
- Press the OPEN/CLOSE button (⏏) once to open the disc try, once again to close it.
- The disc tray can also be closed by pressing the play (▶) button.
  When this is done, playback automatically starts from the first track on the disc (or if the tracks are programmed, the first programmed track).
- Load the disc with the label side facing up, being careful not to touch the disc surface.
- Load the disc with the disc tray open all the way.
- Set the disc securely in the tray guide at the center of the disc tray.
  To play an 8 cm disc, place the disc in the sunken part at the center of the disc tray.
- When the disc tray is closed, the disc turns automatically for several seconds, and the number of tracks and total playing time appear on the display.

Only discs with this mark can be played.

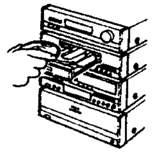
- For CDVs, only the audio part is played (the video part is not played).

Disc	Remarks
CD	
CDV	Only the audio part is played.
CD single (8 cm)	

■ When removing the disc from its case:
As shown in the diagram, grasp the disc along the edges, gently press down on the hole in the middle with a finger, and lift the disc. It should come out easily.

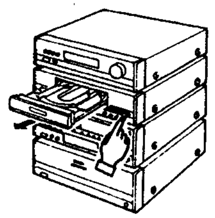


■ When setting the disc in the disc tray:
Always set the disc with the label side facing up. (Compact discs can only be played on one side). For 8 cm CDs, set the disc in the sunken part in the middle of the tray.

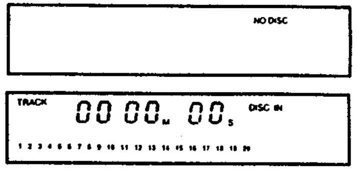


Handling the Disc Tray
Do not switch off the power or push or pull the disc tray when it is moving, since this may damage it.
If the cord of a set of headphones, etc., gets caught in the disc tray when it is closed, press the OPEN/CLOSE button (⏏) again.

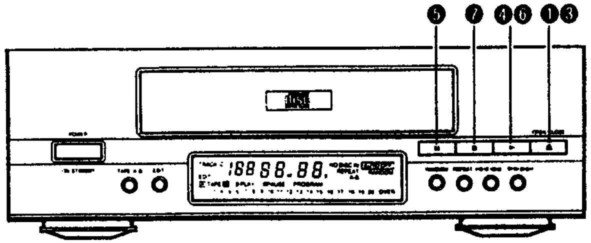
- Never set objects other than CDs in the disc tray, as this can cause damage.



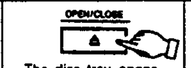
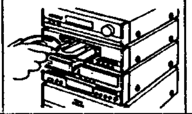
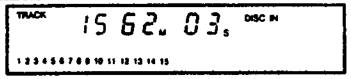
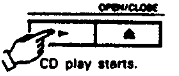
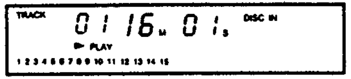
NOTE:
"NO DISC" is displayed on the display window when no disc is loaded, when the disc is loaded upside-down, or when the disc is not properly loaded. Also, " 00. 00. " may appear during playback of a CD if the disc is scratched or dirty. If this happens, the set will not operate when a normal operating button (other than the OPEN/CLOSE button) is pressed, so press the OPEN/CLOSE (⏏) button, remove the disc, clean it as necessary, then press the PLAY (▶) button again.



Regular Play



Example: Playing a CD with 15 tracks and a total playing time of 62 minutes 03 seconds, starting from track 1

1	Press the OPEN/CLOSE button.	 The disc tray opens.	
2	Set the CD in the disc tray. Refer to Page 16.		The display appears several seconds after the disc tray closes.
3	Press the OPEN/CLOSE button.	 The disc tray closes.	 TRACK 15 62M 03S DISC IN 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
4	Press the play button.	 OPEN/CLOSE CD play starts.	 TRACK 01 16M 01S DISC IN ▶ PLAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

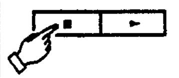
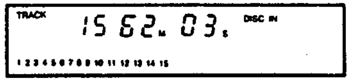
To stop play temporarily:

5	Press the pause button.		"▶ PLAY" goes off and "II PAUSE" appears. CD play is paused at the point the button is pressed.

To resume CD play:

6	Press the play button.		II PAUSE" goes off and "▶ PLAY" appears. CD play resumes from the point the pause button was pressed.

To stop CD play:

7	Press the stop button.		 TRACK 15 62M 03S DISC IN 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

NOTE:

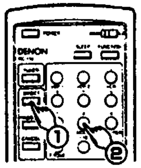
- 00 is displayed on the track number section of the display for several seconds after the disc is set, while the data on the number of tracks, playing time, etc., is being read from the disc. After this, the number of tracks and total playing time appear.

Various CD Play Functions

(Insert the disc before performing the following operations.)

❶ Playing Certain Tracks .... DIRECT SELECTION

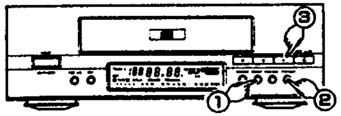
Example: Playing the 8th track
Perform this operation from the remote control unit.



① Press the DIRECT button.
② Press track button "8". "TRACK 8" appears on the display, and the 8th track begins playing.
- When the end of the track is reached, play continues on to the next track.

- For track numbers of 11 and higher, for example 15, press [+10] and [5]. For track numbers of 20 and higher, for example 23, press [+10], [+10], and [3]. For track number 20, press [+10] and [10].

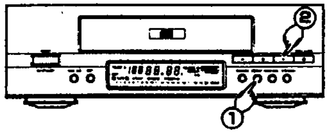
❼ Playing 1 Track Repeatedly .... 1 TRACK REPEAT



① Press the REPEAT button once.
② Press the ⏮◀◀ or ▶▶⏭ button, and select the desired track.
③ Press the play button (▶) to start play.

- When the specified track finishes playing, the pickup returns to the beginning of that track and play is repeated.
- If the REPEAT button is pressed once during play, the track will be played repeatedly.
- If the REPEAT button is pressed once during programmed play, the track will be played repeatedly.
- If the REPEAT button is pressed once while the disc is stopped, the TRACK numbers indicator flashes and the 1 track repeat play mode is set.

❶ Playing All Tracks Repeatedly .... ALL TRACKS REPEAT

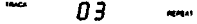


① Press the REPEAT button twice.
② Press the play button (▶) to start play.

- When the last track finishes playing, the pickup returns to the first track of the disc and play is repeated.
- If the REPEAT button is pressed twice during play, the disc will be played repeatedly.
- If the REPEAT button is pressed twice during programmed play, the program will be played repeatedly.
- If the REPEAT button is pressed twice while the disc is stopped, the TRACK numbers indicator lights and the all tracks repeat play mode is set.

❸ Playing a Specific Section Repeatedly .... SECTION REPEAT

Example: The CD has a total of 15 tracks

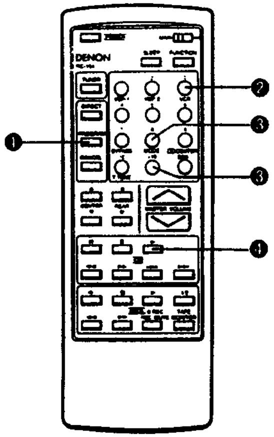
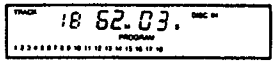
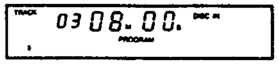
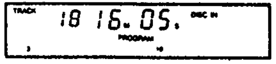
1st time	(1) Press the REPEAT button during CD play. 	Only that track is played repeatedly, and that track number lights on the music calendar. * With a 1-track repeat of track 21 or higher, "TRACK No." flashes.
	(2) Press the REPEAT button before CD play. TRACK 15 REPEAT	The total number of tracks flashes, and then ① the first track is repeated by pressing the play button ② when play is started by direct selection from the remote control or with the ⏭ or ⏮ button, only those selected tracks are played repeatedly.
2nd time	Press the REPEAT button before CD play or during CD play. REPEAT TRACK 03 REPEAT	The track numbers contained on the disc light up on the music calendar, and all tracks are played repeatedly.
3rd time	Press the REPEAT button during CD play. REPEAT REPEAT A	"REPEAT A-" lights up. If nothing else is done, all tracks are played repeatedly.
4th time	Press the REPEAT button during CD play. REPEAT REPEAT A-B	"REPEAT A-B" lights up. The A-B section is played repeatedly.
Pressing the REPEAT button once again returns the player to regular CD play.		

❺ Playing Certain Tracks in any Desired Order .... PROGRAMMED SELECTION

(Perform this operation from the remote control unit.)

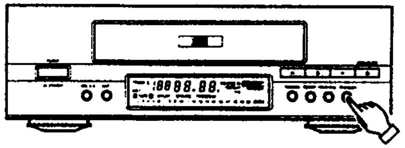
Example: Programming track 3 to play first, track 18 to play second, on a CD with 18 tracks and a total playing time of 62 minutes, 3 seconds

Setting and Playing the Program (Set the Slide Switch to the "MAIN" Side.)

1	Press the PROGRAM button.		
2	Set track 3 to play first.		 After 2 seconds The display when track 3 is set to play first Time of first track: 8 minutes, 00 seconds
3	Set track 18 to play second.		 After 2 seconds The display when track 18 is set to play second Total time of tracks 1 and 2: 16 minutes, 05 seconds
4	Press the play button.		The tracks start playing in the programmed order.

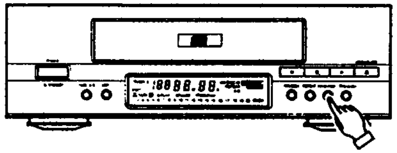
- The numbers of the programmed tracks go off once the tracks are played.
- The time display will read "— — M — — S" if a track number of 31 or higher is set in the program.
- When a program is set during CD play after a direct selection, the track currently playing is set as the first track in the program.
- Up to 20 tracks of your choice from among track numbers 1 through 99 can be programmed with this CD player.
- If you attempt to set a track number that is greater than the number of tracks on the disc, that track number will not be displayed when the buttons are pressed.
- Programming is also possible when the disc tray is open. In this case, track numbers greater than the number of tracks on the disc can be programmed, but these are ignored when the disc is played.
- There is a silent interval of 4 seconds between tracks. This is has been designed to create a blank section of 4 seconds between selections when recording programmed tracks onto tape.
- The entire program is cleared when the disc tray is opened or closed (by pressing the ▲ button).
- If you make a mistake when programming tracks, press the CANCEL button and program again. (Each press of the CANCEL button cancels the last track.)
- An A-B section repeat is not possible during programmed play.
- Other operations possible during programmed play:
  The quick search, pause, skip monitor, and other operations can be used during programmed play. To move to the beginning of the previous track with the quick search operation, press ⏮◀◀ once, then once again while the time display reads '00M 00S'. To move to the beginning of the following track, press ▶▶⏭ once, regardless of the time display.
- Perform programming and canceling in the stop mode.

❻ Moving to the Next Track During CD Play .... QUICK SEARCH



① Press the auto search forward button (▶▶⏭).
- Each press of the auto search forward button (▶▶⏭) moves the pickup to the beginning of following tracks.

❼ Moving Back to the Beginning of the Current Track During CD Play .... QUICK SEARCH

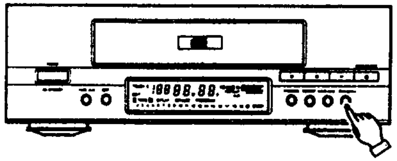


① Press the auto search backward button (⏮◀◀).
- Each press of the auto search backward button (⏮◀◀) during the search operation moves the pickup to the beginning of previous tracks.

❽ Searching for Tracks While Listening to the Sound .... SKIP MONITOR

- Use this to skip through a disc listening to the sound at high speed.
  This function is convenient when searching for a certain section within a long track.
- Use the skip monitor function to find the desired position, then release the search button to start regular playback from there.

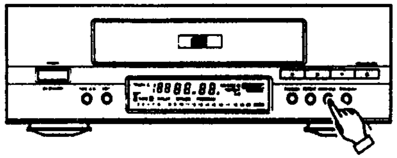
1 Forward skip monitor



① During CD play, press and hold in the forward search button (▶▶⏭) to skip forward while listening to the sound.

- The track number and elapsed playing time of the track being skipped through are indicated on the display.
- If the end of the last track on the disc is reached while pressing the search button, (JJ) appears on the display and the skip monitor operation stops. To resume CD play, press the search backward button (⏮◀◀) until (JJ) switches to the track number, then perform a different operation.

2 Backward skip monitor



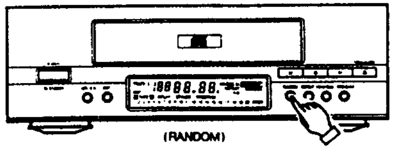
① During CD play, press and hold in the backward search button (⏮◀◀) to skip backward while listening to the sound.

- The track number and elapsed playing time of the track being skipped through are indicated on the display.
- If the beginning of the first track on the disc is reached while pressing the search button, (CC) appears on the display and the skip monitor operation stops. To resume CD play, press the search forward button (▶▶⏭) until (CC) switches to the track number, then perform a different operation.

If the forward or backward skip button is pressed during programmed CD play and released at a track which has not been programmed, the next programmed track will be played once that track has been played to the end.

❾ Playing Tracks in Random Order .... RANDOM SEARCH

- The function plays each track on the disc once in random order.



(RANDOM)

- A press of the RANDOM button lights the RANDOM indicator to show that the random mode has been set. Random search will begin when the play button is pressed and the disc will start playing automatically.
- Simply pressing the RANDOM button during CD play will start the random search and start random play.
- Pressing the RANDOM button when a program has been set will play the programmed tracks in random order.
- Pressing the RANDOM button when repeat play has been set will play the tracks through randomly one time, and each time following this there will be a random search with a different pattern.
- An A-B section repeat is not possible during random play.
- During the search operation, the track numbers of the disc from track 1 to the last track will be repeatedly displayed at high speed in the TRACK NO. section, and the following tracks to be played will not be known from the end of the search to the time CD play begins.
- Pressing the RANDOM button when 1-track repeat has been set will automatically change the setting to all tracks repeat and these tracks will be played randomly.

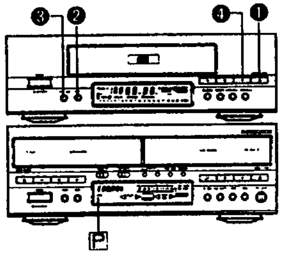
NOTE:

Random play is not possible during the edit operation.

Edited Recording onto Sides A and B of a Tape (EDIT)

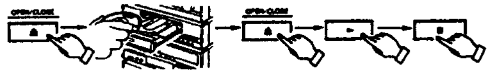
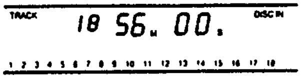
Editing is possible with CDs containing up to 20 tracks.

Before starting the edited recording operation, load the cassette tape to which you will record into deck 2 with side A facing up. The leader tape is automatically taken up before recording starts. (Set the REV MODE switch to the ⊃ position.)



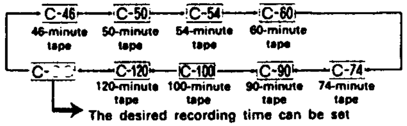
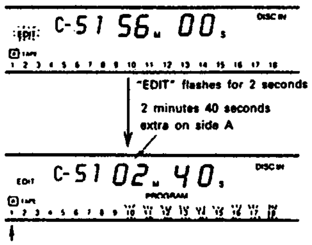
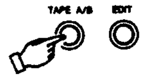
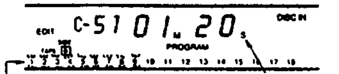
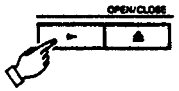
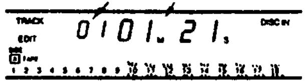
❶ Automatic Edited Recording .... RECORDING IN THE SAME ORDER AS ON THE DISC

Example: Recording a disc with 18 tracks and a total playing time of 56 minutes onto a C-60 cassette tape

1	 OPEN/CLOSE Press the OPEN/CLOSE button. → Set the disc. → Press the OPEN/CLOSE button. → Press the play button and set the function to CD. → Press the stop button.	 TRACK 18 56 M 00 S DISC IN 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

NOTE:

- With edited recording, side B of the tape will be recorded automatically even when the REV MODE switch of the deck is set to the ⇄ position.
- During edited recording, only the following buttons will function: the stop button of the CD or the OPEN/CLOSE button, and the stop button of the deck.
- When using a recorded tape for edited recording, the tape should be erased before use, since when the tape is longer than the set time, an unrecorded section of side B will remain after the tape stops.
  When a tape which has been recorded with this system is played back, there will be 4-second blank portions between tracks (for making it easy to reach the beginning of a track). This will differ from the actual silent portions between the tracks on the disc, and so there will be some error in the actual remaining time of the tape and the displayed time.

2	EDIT Press the EDIT button to set the tape length. Press the EDIT button four times when using a 60-minute (C 60) tape. (The tape length is to total time of sides A and B.) The display changes as follows each time the EDIT button is pressed. (When the tape time has already been set, the display will change in order starting at that time each time the EDIT button is pressed.)  C-46 46-minute tape → C-50 50-minute tape → C-54 54-minute tape → C-60 60-minute tape → C-74 74-minute tape → C-90 90-minute tape → C-100 100-minute tape → C-120 120-minute tape → C- The desired recording time can be set when this is displayed. (Method 1) ↓ Example: For a 36-minute tape, use the ⏮◀◀ or ▶▶⏭ button to set 36. To set the tape length using the remote control unit, use the number buttons. For example, in the case of a 30-minute tape, press +10 twice and press 10. ↓ If you make a mistake, press the EDIT button to display C-00, then start over again.	Setting the desired recording time (Method 2) Select a tape length close to the desired time, then make a fine adjustment using the ⏮◀◀ or ▶▶⏭ button. For example, to set 51 minutes, select C-50, then press the ▶▶⏭ button once to set C-51.  EDIT C-51 56 M 00 S DISC IN "EDIT" flashes for 2 seconds 2 minutes 40 seconds extra on side A EDIT C-51 02 M 40 S DISC IN PROGRAM Tracks for side A light up. Tracks for side B flash. (Tracks 1 through 9 are recorded on side A.) (Tracks 10 through 18 are recorded on side B.)
3	 TAPE A/B EDIT A/B button is pressed. (Use this to check the extra time on side B.) The display changes between sides A and B each time the TAPE	 EDIT C-51 01 M 20 S DISC IN PROGRAM Tracks for side A flash. Tracks for side B light up. 1 minute 20 seconds extra on side B.
4	 OPEN/CLOSE Press the play button.	Track number Elapsed time  TRACK EDIT 01 01 M 21 S DISC IN

- Note that in some cases, even if the tape is longer than the total playing time on the disc, it may not be possible to record all the tracks onto the tape, since they are divided onto sides A and B. In such cases, the OVER indicator flashes.

❷ Programmed Edited Recording .... RECORDING CERTAIN TRACKS IN ANY DESIRED ORDER

① Follow the instructions under "PROGRAMMED SELECTION" on Page 18 to program the tracks.
② Perform steps 2 through 4 under the aforementioned "Automatic Edited Recording".

Programmed CD Play Using the Search Buttons (⏮◀◀ ▶▶⏭)

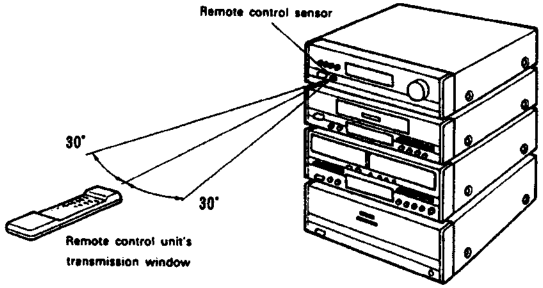
Pressing the PROGRAM button of the remote control unit will light up the "PROGRAM" indicator. When the disc is stopped, programming can be done with the search buttons (⏮◀◀ ▶▶⏭) on the CD player or with the search buttons (⏮◀◀ ▶▶⏭) on the remote control unit.

- Select the tracks with the search buttons, then press the PROGRAM button to program them.
- The search buttons (◀◀ ▶▶) can be used to change the track numbers continuously.
- After the track numbers have been selected with the search buttons, if the play button is pressed to start CD play before the PROGRAM button is pressed, the last track of the program set up to this point will be played.
  In this case, the tracks selected with the search buttons will not be programmed.

12 REMOTE CONTROL UNIT

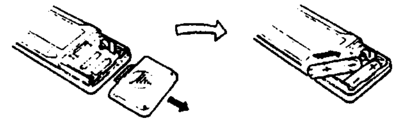
Cautions on Use

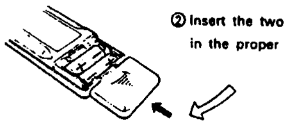
1. The D-250 is supplied with a remote control unit (RC-154) for system control.
2. Replace the batteries with new ones when the transmission distance possible with the remote control unit shortens.
3. For longer battery life, remove the batteries when not using the remote control unit for long periods.
4. When replacing batteries, use two new batteries. Never use an old battery with a new one.
5. Do not use two different types of batteries.
6. Do not heat batteries or take them apart.
7. Be careful that the remote control sensor is not exposed to direct sunlight or strong light from lighting fixtures.
8. The remote control sensor is located on the tuner preamplifier. Point the remote control unit at the sensor, then press the buttons for the desired operation.
9. Operate the remote control unit within the range illustrated in the diagram.



Inserting the Batteries

① Open the battery case lid on the back of the remote control unit.





② Insert the two batteries (R6P, AA) in the proper direction.

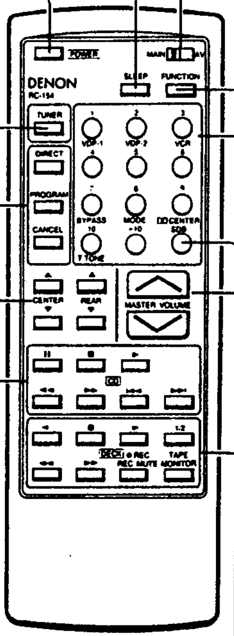
③ Set the battery case lid back in place.

𝌆 appears at the upper left corner of the tuner-preamplifier's display when a signal is received.

- The remote control unit can be used at a distance of about 7 meters from the remote control sensor, but this distance will be shorter if there are obstacles in the way or if the remote control is operated from an angle.

10. Do not press buttons on the remote control unit and on the main unit at the same time. Doing so will lead to a malfunction.
11. If 𝌆 appears on the tuner-preamplifier's display due to incident light even though the remote control unit has not been operated, it is best to move the set or place it in a different direction. Even if this happens, it will not cause a malfunction with remote control unit.
12. When adjusting the volume continuously with the remote control unit, the volume adjustment will stop if the remote control unit is moved away from the remote control sensor. Should this happen, press the button again to continue changing the volume.

Button Names and Functions



SLEEP

Press this to set the sleep timer.

POWER

Press this to switch on the power for the entire system or set the system to standby.

TUNER

Press this to listen to the preset stations.

CD Play

DIRECT button
Press for direct track selection of CD player.

PROGRAM button
Press for programmed selection of CD player.

CANCEL button
Press once during programming to cancel the last track programmed.

CENTER and REAR level

Use to adjust the volume of an optional AV amplifier. Press ▼ to lower the volume, ▲ to raise the volume.

Operating the CD Player

Pause button (II)
Press to temporarily stop CD play. Press the play button ▶ to resume play.

Stop button (■)
Press to stop CD play.

Play button (▶)
Press to start CD play.

Manual search backward button (◀◀)
Manual search forward button (▶▶)
Press these to quickly move backward or forward.

Backward skip monitor button (I◀◀)
Press during CD play to go back to the beginning of that track. Press the button again within 0.5 seconds to go back to the beginning of the previous track.

Forward skip monitor button (▶▶I)
Press during CD play to go forward to the beginning of the next track. Press the button again to go forward to the beginning of the track two tracks ahead.

SDB (Super Dynamic Bass)

Press this button for more powerful bass sound. Press again to return to the original setting.

MAIN/AV switch

Switch to the AV side when the system is used together with the optional AV amplifier. Usually, this switch is set to the MAIN side. When set to AV, the number buttons switch over to the functions indicated below them.

FUNCTION (input switching) button

Switches the function between TUNER, TAPE, CD, PHONO, and DAT.

Number buttons

After pressing TUNER, these buttons call up the preset stations.
When used with CD play, after pressing DIRECT or PROGRAM, these buttons specify the tracks to be played.

MASTER VOLUME

Adjusts the volume.
Press V to lower the volume, and Λ to raise it.

Operating the Cassette Decks

Deck 1/2 button
Press this to select the deck to be operated.

Stop button (■)
Press this to stop the tape deck.

Forward play button (▶)
Press this to play back or record in the forward direction.

Reverse play button (◀)
Press this to play back or record in the reverse direction.

● REC/REC MUTEE button
(recording/recording mute button)
To set the recording mode when in the stop mode, press this button, then press either the "▶" or the "◀" button. When pressed during the recording or recording pause mode, a blank section of approximately 5 seconds is created on the tape, after which the deck is set to the recording pause mode.

Rewind button (◀◀)
Press this to rewind the tape.

Fast-forward button (▶▶)
Press this to fast-forward the tape.

TAPE MONITOR button
Use this to monitor the sound of the tape. When used in combination with a 3-head deck, the recorded sound can be monitored (from the tape).

When the MAIN/AV switch is set to the AV side, number buttons 4, 5, 6, and +10 can be used for the following operations. Use these buttons when a DENON AV amplifier having these functions is used with this system.
4 button → VCR-2
5 button → DBS
6 button → TV
+10 button → 3CH LOGIC

13 AUTO ON/OFF FUNCTION

- When the CD or deck play button, or the OPEN/CLOSE button is pressed from the standby mode, the power is switched on automatically, and the play or open/close operation is performed. The "AUTO OFF" indicator lights at this time.
- When play ends in this mode and there are no operations for 10 minutes, the power is automatically switched off and the system enters the standby mode. If there is no disc or cassette in the system, the power will be switched off in about 1 minute.
- When the disc tray or the cassette tray is open, the tray will close in about 1 minute.
- When the tuner number buttons (preset numbers) are pressed, the power will be switched on in the same way and the system will enter the auto off mode. In this case, the "TUNED" indicator will go off and 10 minutes later the power will be switched off.

14 IMPORTANT INFORMATION

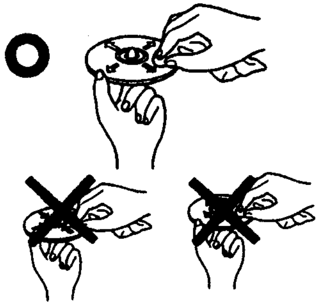
• Head Cleaning

After the cassette deck has been used for a while, powder from the tapes and dirt adhere to the head and lower the sound quality. Use a head cleaning cassette tape to clean.

NOTE:

Some of the cleaning sets on the market have a strong polishing effect which can damage the head.

- **Disc Cleaning**



Never use the following to clean discs:

- Solvents such as benzene or alcohol
- Cleaners containing abrasives
- Record sprays or cleaners
- Anti-static products

• Head Demagnetizing

The heads become magnetized after the deck has been used over a long period of time or if the heads are exposed to a magnetic field. This results in noise and reduced treble. In addition, there may be a reduction of the treble range of recorded tapes as well as noise produced on these tapes.

When the heads become magnetized, use one of the cassette tape head demagnetizers (erasers) available on the market to demagnetize the heads.

- For details, read the operating instructions of the demagnetizer.

Dust, fingerprints, or spittle on the disc can cause noise or skipping.

If the disc is dirty or if the player does not work properly, clean the disc as follows:

- Hold the disc as shown in the diagram, with the signal surface facing up (and the labelled side facing down).
- Using a soft cloth, wipe the disc gently from the inside straight towards the edges (as shown by the arrows).

- Do not wipe from the edges towards the center, or around the disc as you would wipe records.
- Do not use hard cloths or rub the disc forcefully, since the signal surface is susceptible to scratches.

15 SPECIFICATIONS

• **Tuner-preamplifier (UTP-250)**	
Reception Frequency Range:	FM: 87.50 MHz to 108.00 MHz AM: 522 kHz to 1611 kHz (MW), 153 kHz to 279 kHz (LW)
Receiving Sensitivity:	FM: 1.5 μV, 75 ohms (SN ratio 30 dB) AM: 20 μV (SN ratio 20 dB, MW), 35 μV (SN ratio 20 dB, LW)
FM Stereo Separation:	40 dB (1 kHz)
Bass Adjustment:	100 Hz ±8 dB
Treble Adjustment:	10 kHz ±8 dB
Super Dynamic Bass:	80 Hz +8 dB
Jacks:	PREOUT: Output jacks PHONO: Input jacks DAT: Input jacks, recording output jacks Processor: Processor input/output jacks
Dimensions (max.):	270 (W) × 86 (H) × 330 (D) mm (10-5/8" × 3-25/64" × 13")
Weight:	3.2 kg (7 lbs 10 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	18 W
• **Amplifier (UPO-250)**	
Rated Output Power:	50 W + 50 W (20 Hz to 20 kHz, 8 ohm)
Jacks:	6.3 mm headphone jack
Dimensions (max.):	270 (W) × 96 (H) × 330 (D) mm (10-5/8" × 3-25/32" × 13)
Weight:	4.1 kg (9 lbs 1 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	140 W
• **CD Player (UCD-250)**	
Wow and Flutter:	Below measurable limits (±0.001% W. Peak)
Sampling Frequency:	44.1 kHz
Light Source:	Semiconductor
Dimensions (max.):	270 (W) × 86 (H) × 313 (D) mm (10-5/8" × 3-25/64" × 12-21/64")
Weight:	3.1 kg (6 lbs 13 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	15 W
• **Cassette Deck (UDRW-250)**	
Type:	Horizontal 4-track, 2-channel auto reverse stereo cassette deck
Heads:	1 hard permalloy recording/playback head, 1 hard permalloy playback head, and 1 double-gap ferrite erase head
Tape Speed:	4.75 cm/s
Noise Reduction Circuits:	Dolby B and C NR
Usable Tapes:	Normal, chrome, and metal tapes
Dimensions (max.):	270 (W) × 96 (H) × 318 (D) mm (10-5/8" × 3-25/32" × 12-33/64")
Weight:	4.4 kg (9 lbs 11 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	18 W
• **Remote Control Unit (RC-154)**	
Type:	Infrared pulse
Number of Buttons:	41 (including 1 slide switch)
Dimensions (max.):	60 (W) × 177 (H) × 18 (D) mm (20-23/64" × 6-31/32" × 45/64")
Weight:	130 g (Approx. 6.4 oz) (including batteries)

* Maximum dimensions include controls, jacks, and covers. (W) = width, (H) = height, (D) = depth

- For improvement purposes, specifications and functions are subject to change without advanced notice.

16 TROUBLESHOOTING

1. Check that the connections are proper.
2. Check that you are operating the system according to the instructions in the manual.

Check the following table if the system does not seem to be working properly.

If the problem is not solved after checking these points carefully, the system may be malfunctioning. Switch off the power and contact your store of purchase.

	Symptom	Cause	Measures	See Page
Common	Power does not come on when POWER button pressed.	• Power cord not plugged into outlet.	• Plug cord into outlet properly.	5
	No sound produced from speakers.	• VOLUME control set to minimum. • Headphones are plugged in. • Speaker cables not connected to speaker terminals.	• Turn VOLUME control clockwise (↷). • Disconnect headphones. • Connect speaker cables properly.	6 6 5
	Treble not produced. Orientation of sound field not clear.	• Speaker polarities (⊕ and ⊖) not • matched.	• Connect speaker cables properly. •	5
	Source other than the desired one is heard.	• Function selector button not set properly.	• Set to desired function.	6
Deck	Cannot record when REC/REC MUTE button pressed.	• No cassette tape loaded. • Accidental erasure prevention tabs of cassette broken off.	• Load tape. • Apply cellophane tape over holes.	14 13
	Sound is interrupted during playback and recording, or treble sound is low.	• Head dirty. • Tape stretched.	• Clean. • Replace tape.	21 -
	Wow (fluctuation) is heavy during playback and recording.	• Capstans and pinch rollers dirty.	• Clean.	21
	Buzzing noise heard during playback.	• Noise from TV. • (Some TVs produce noise.)	• Separate TV from system. • Turn off TV.	- -
Tuner	Hissing noise heard during FM reception.	• Antenna not pointed in proper direction. • Signals weak.	• Change direction of antenna. • Install outdoor antenna.	4 4
	Hissing or scratchy noise heard during AM reception.	• Noise from TV, etc., or interference from other stations.	• Turn off TV. • Change position of loop antenna. • Install outdoor antenna.	- - 4
	Hum noise heard during AM reception.	• Signals coming over power cord are modulated by power source frequency.	• Plug in cord in opposite direction. • Install outdoor antenna.	5 4
CD Player	Disc loaded but total number of tracks not displayed.	• Disc loaded upside-down. • Disc dirty. • Non-standard disc loaded.	• Reload disc. • Clean disc. • Replace with standard disc.	16 21 16
	Operation not performed when buttons pressed, or playback stops in middle of track.	• Disc loaded upside-down. • Foreign object in disc holder. • Disc dirty. • Disc scratched.	• Reload disc. • Remove disc and remove foreign object. • Clean disc. • Replace with non-scratched disc.	16 16 21 -
	Sound skips.	• Dust, fingerprints, or spittle on disc. • Disc scratched. • Player set in shaky, unstable place.	• Clean disc. • Replace with non-scratched disc. • Set player in stable place.	21 - -
	Buzzing noise mixed in with CD sound.	• Signals coming over power cord are modulated by power source frequency.	• Plug in cord in opposite direction.	5

Normal operation may not be possible if there is dirt or other substances on the surface of the internal objective lens or sensor.
These parts must be cleaned periodically depending on the place of installation.
For details, contact your store of purchase.

Avoid using ultrasonic humidifiers nearby.
If ultrasonic humidifiers are used nearby, the calcium, etc., included in the water may be scattered into the air, causing white dust to accumulate on the surface of the objective lens or sensor, resulting in improper operation.

Dew (Condensation) Phenomenon

Dew (water droplets) may form on the lens of the internal optical system or on the disc, or on the rotating parts of the tape deck in situations such as the following:

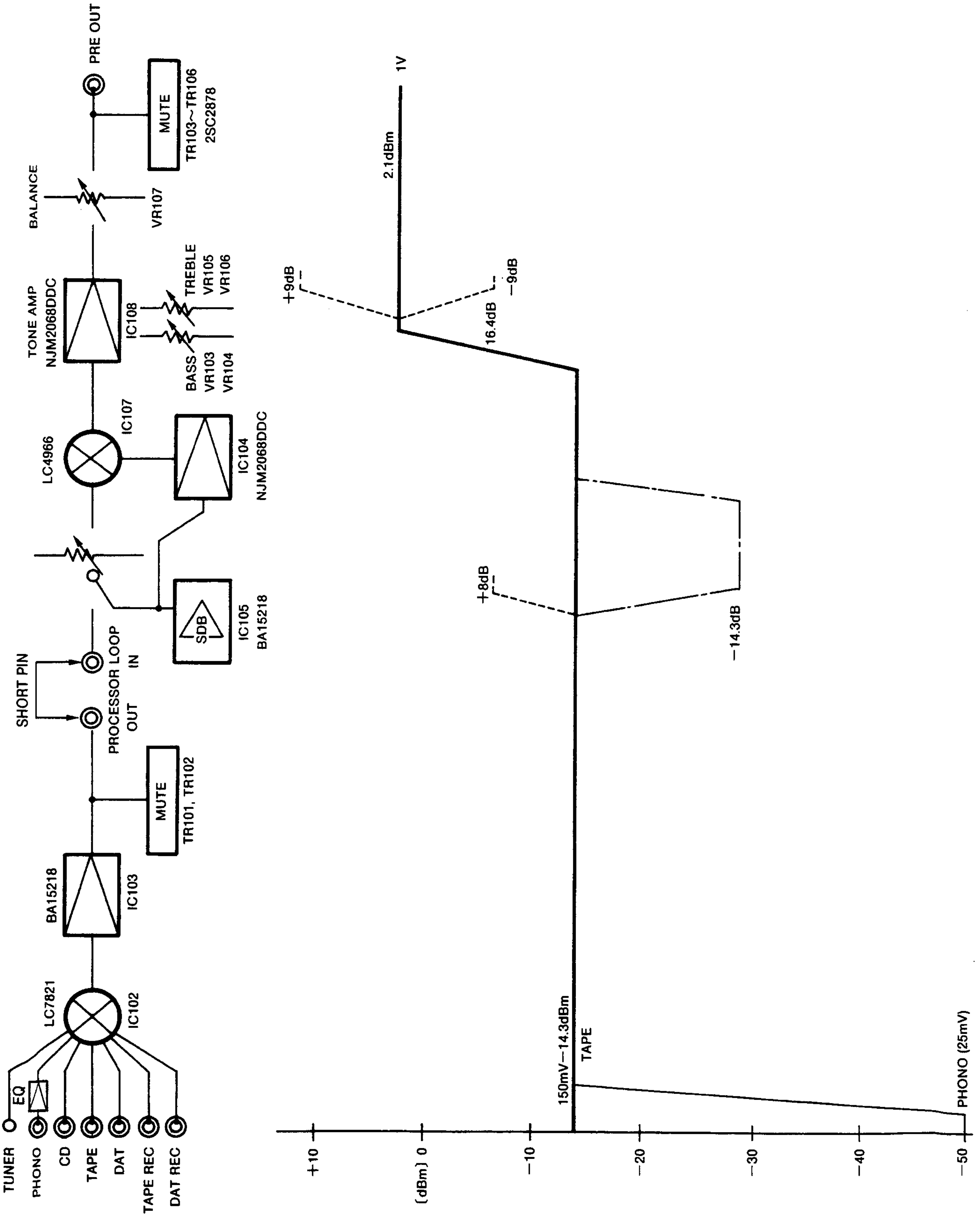
- Soon after a heater is put on.
- When the set is placed in a steamy or damp room.
- When the set is moved from a cold place to a warm room.

When Condensation Forms

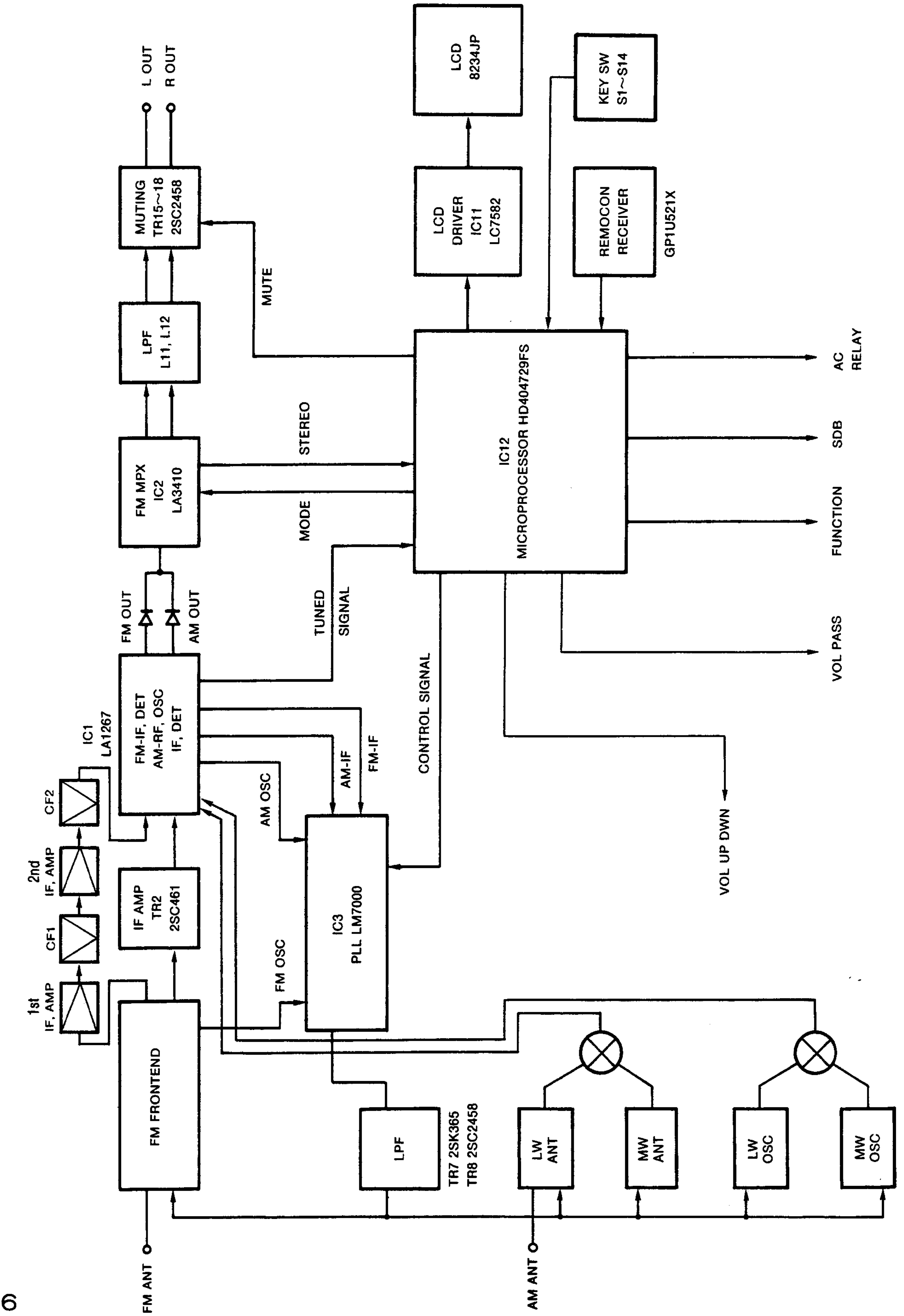
The signals of the disc may not be read and this product will not operate properly. To remove the condensation, take out the disc and switch on the power. The condensation will evaporate within 1 hour and the set will operate normally.

This system consists of precision components using microprocessors. Avoid using it in places where there is much external noise. If used is such places, the system may not operate properly, but this is not a problem with the system. If the system does not operate properly, try performing the desired operation again.

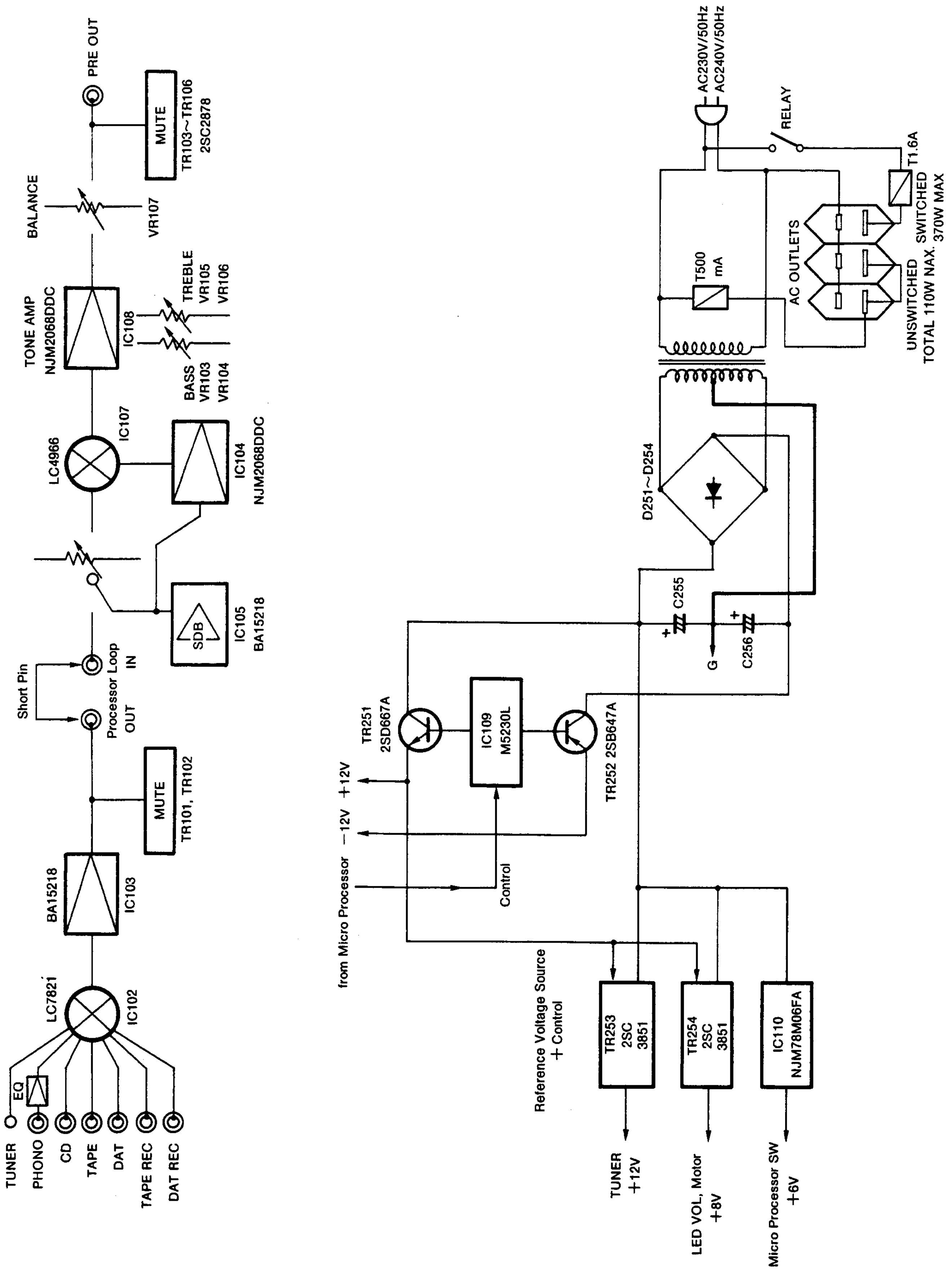
LEVEL DIAGRAM


TUNER
PHONO
EQ
CD
TAPE
DAT
TAPE REC
DAT REC
LC7821
IC102
BA15218
IC103
MUTE
TR101, TR102
SHORT PIN
PROCESSOR LOOP
OUT
IN
SDB
IC105
BA15218
IC104
NJM2068DDC
LC4966
IC107
TONE AMP
NJM2068DDC
IC108
BASS
VR103
VR104
TREBLE
VR105
VR106
BALANCE
VR107
MUTE
TR103~TR106
2SC2878
PRE OUT
+10
(dBm) 0
−10
−20
−30
−40
−50
PHONO (25mV)
150mV−14.3dBm
TAPE
+8dB
−14.3dB
+9dB
−9dB
16.4dB
2.1dBm
1V

BLOCK DIAGRAM (TUNER SECTION)


L OUT
R OUT
MUTING
TR15~18
2SC2458
LPF
L11, L12
FM MPX
IC2
LA3410
FM OUT
AM OUT
FM-IF, DET
AM-RF, OSC
IF, DET
IC1
LA1267
CF2
2nd
IF, AMP
CF1
1st
IF, AMP
IF AMP
TR2
2SC461
FM FRONTEND
FM ANT
MUTE
STEREO
MODE
TUNED
SIGNAL
AM OSC
AM-IF
FM-IF
FM OSC
IC3
PLL LM7000
CONTROL SIGNAL
LPF
TR7 2SK365
TR8 2SC2458
LW
ANT
MW
ANT
LW
OSC
MW
OSC
AM ANT
LCD
8234JP
LCD
DRIVER
IC11
LC7582
KEY SW
S1~S14
REMOCON
RECEIVER
GP1U521X
IC12
MICROPROCESSOR HD404729FS
AC
RELAY
SDB
FUNCTION
VOL PASS
VOL UP DWN

(PRE AMPLIFIER SECTION)


TUNER
PHONO
CD
TAPE
DAT
TAPE REC
DAT REC
EQ
LC7821
IC102
BA15218
IC103
MUTE
TR101, TR102
Short Pin
Processor Loop OUT
IN
SDB
IC105
BA15218
IC104
NJM2068DDC
LC4966
IC107
TONE AMP
NJM2068DDC
IC108
BASS
VR103
VR104
TREBLE
VR105
VR106
BALANCE
VR107
MUTE
TR103~TR106
2SC2878
PRE OUT
AC230V/50Hz
AC240V/50Hz
RELAY
T1.6A
T500 mA
AC OUTLETS
UNSWITCHED
TOTAL 110W NAX.
SWITCHED
370W MAX
D251~D254
C255
C256
G
TR251
2SD667A
IC109
M5230L
TR252 2SB647A
+12V
−12V
from Micro Processor
Control
Reference Voltage Source
+Control
TR253
2SC
3851
TR254
2SC
3851
IC110
NJM78M06FA
TUNER
+12V
LED VOL, Motor
+8V
Micro Processor SW
+6V

TUNER PRE SECTION

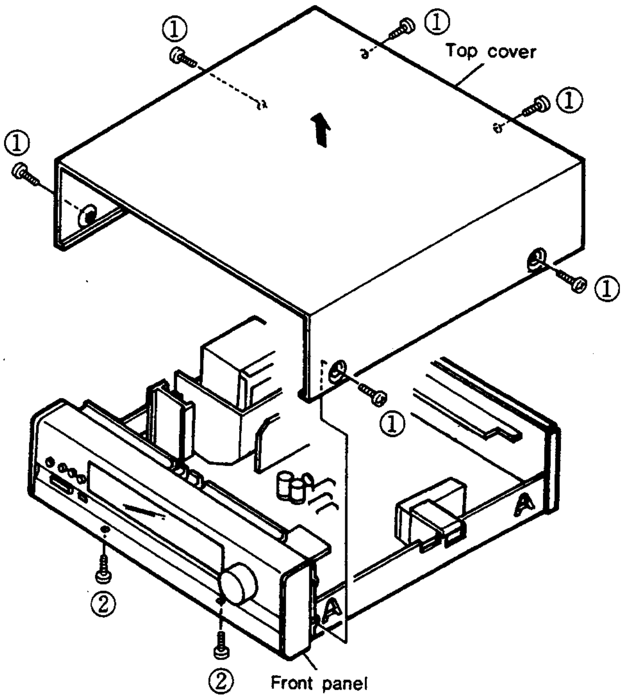
DISASSEMBLY PROCEDURES

(Follow these procedures in reverse order to reassemble.)

1. Removing the top cover and front panel

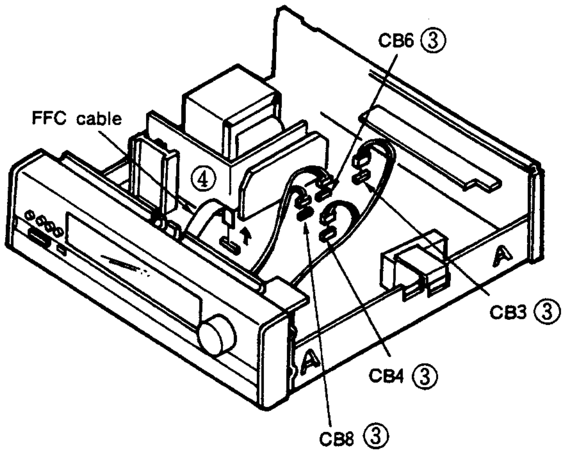
① Remove the 6 screws which fasten the top cover.

② Remove the 2 screws of the bottom side which fasten the front panel.


①
①
Top cover
①
①
①
①
②
②
Front panel

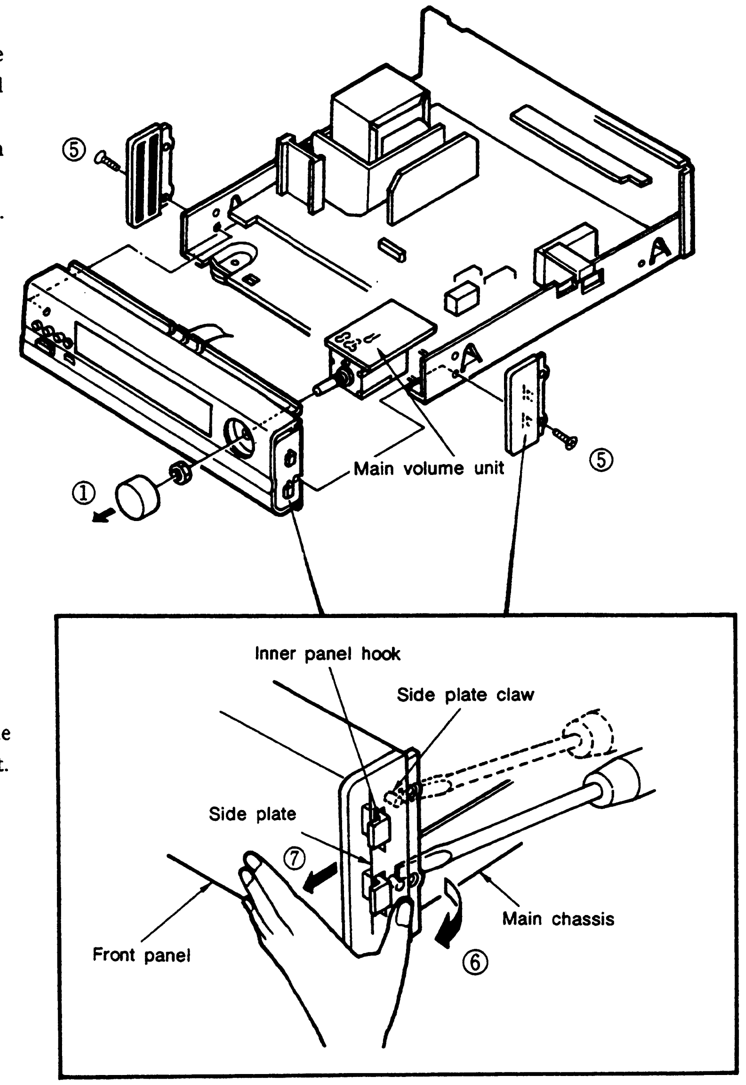
③ Disconnect connectors CB3, CB4, CB6, and CB8 which are attached to the main unit.

④ Remove the FFC cable, which is connected to the main unit, in the direction of the arrow.


CB6 ③
FFC cable
④
CB3 ③
CB4 ③
CB8 ③

TUNER PRE SECTION

⑤ Remove the 2 screws which fasten the side plate.
⑥ While disengaging in the direction of the arrow the tabs of the side plate and the holes of the main chassis (with a flat-bladed screwdriver),
⑦ Use your fingers to push out the hook of the inner panel from the side plate in the direction of the arrow.
Using the same method for the left side, remove the side plate.
Remove the front panel in the direction of the arrow.


⑤
⑤
①
Main volume unit
Inner panel hook
Side plate claw
Side plate
⑦
Front panel
Main chassis
⑥

2. Removing the printed wiring boards

MAIN VOLUME UNIT IU-2476-5

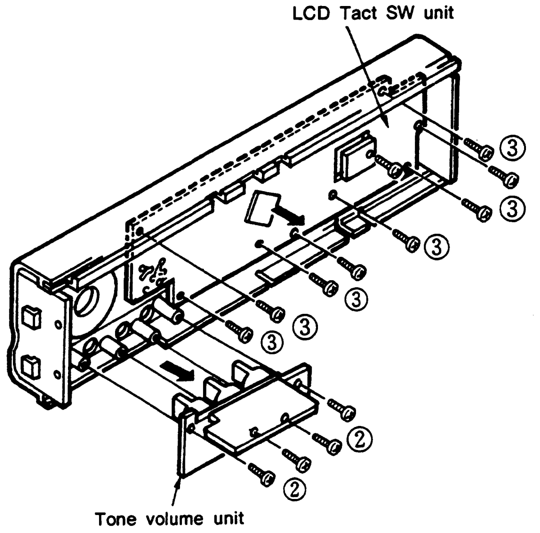
① Remove the volume control assembly in the direction of the arrow and remove the nuts attached to the main volume unit.

TONE VOLUME UNIT IU-2476-4

② Remove the 4 screws which fasten the tone volume unit (1U-2376-4) and remove the board in the direction of the arrow.

LCD TACT SWITCH UNIT IU-2476-3

③ Remove the 9 screws which fasten the LCD Tact switch unit and remove the board in the direction of the arrow.

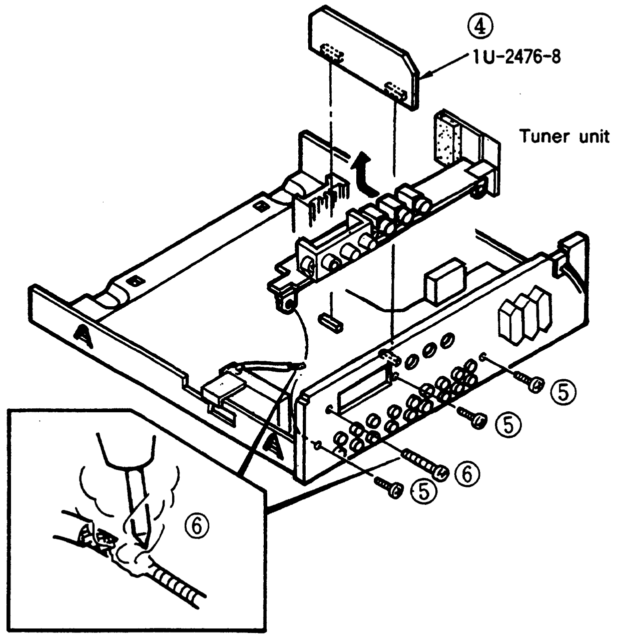

LCD Tact SW unit
③
③
③
③
③
③
③
③
③
②
②
Tone volume unit

S.D.B. UNIT 1U-2476-8

④ Remove the S.D.B. unit in the direction of the arrow.

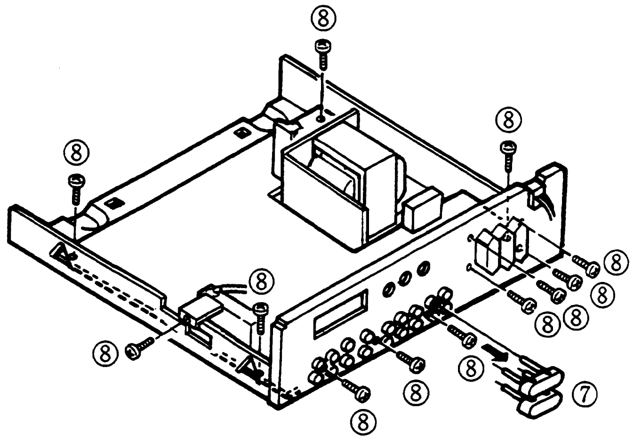
TUNER UNIT IU-2476-2

⑤ Remove the 3 screws which fasten the tuner unit.
⑥ Remove the solder from the shielded wire, then remove the screw.

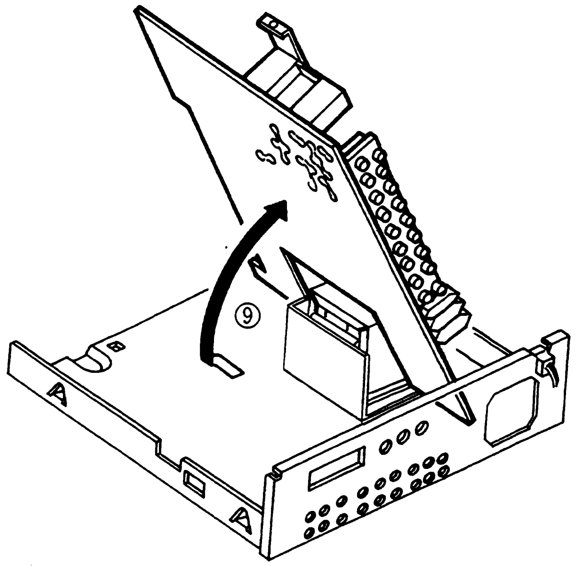

④
1U-2476-8
Tuner unit
⑤
⑤
⑤
⑥
⑥

MAIN UNIT IU-2476-1

⑦ Remove the 2 shorting pins which are attached to the 6-pin pin jack.
⑧ Remove the 12 screws which are attached to the main unit.

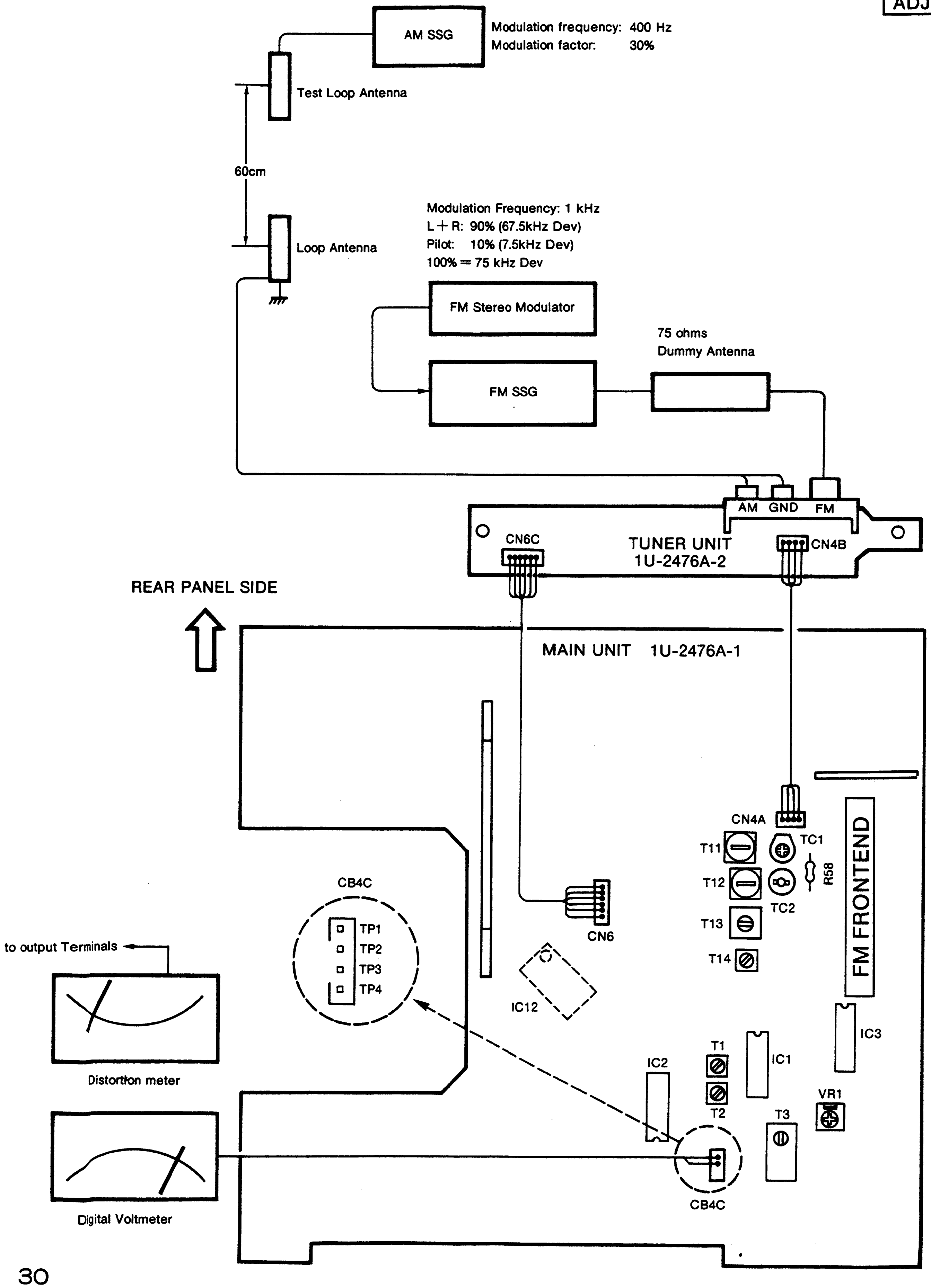

⑧
⑧
⑧
⑧
⑧
⑧
⑧
⑧
⑧
⑧
⑧
⑧
⑦

⑨ Remove the main unit in the direction of the arrow.

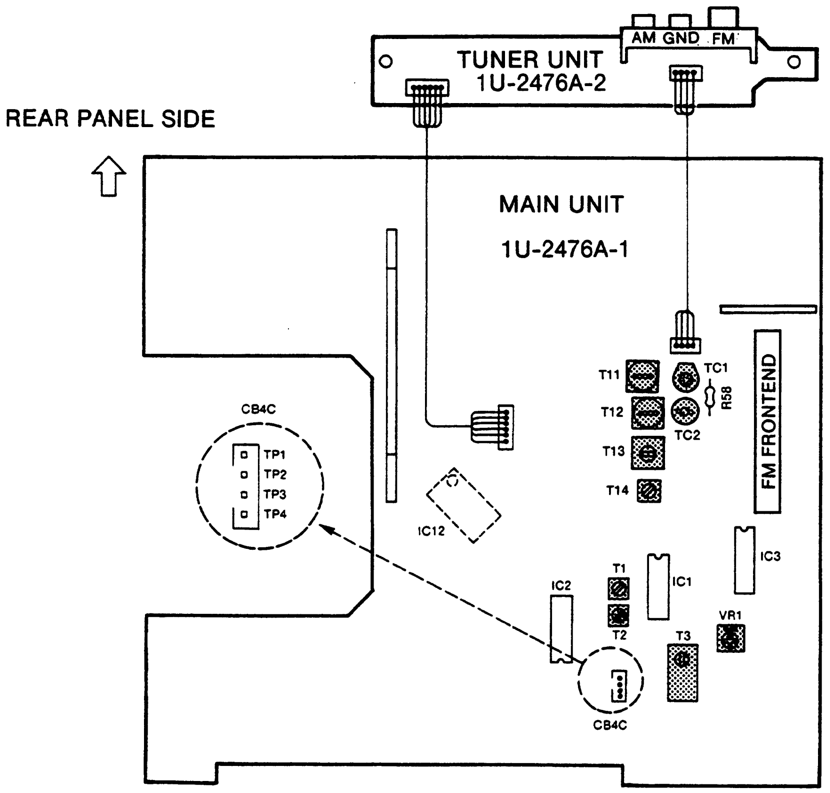


TUNER PRE SECTION

ADJUSTMENTS


AM SSG
Modulation frequency: 400 Hz
Modulation factor: 30%
Test Loop Antenna
60cm
Loop Antenna
Modulation Frequency: 1 kHz
L + R: 90% (67.5kHz Dev)
Pilot: 10% (7.5kHz Dev)
100% = 75 kHz Dev
FM Stereo Modulator
FM SSG
75 ohms
Dummy Antenna
AM
GND
FM
CN6C
TUNER UNIT
1U-2476A-2
CN4B
REAR PANEL SIDE
MAIN UNIT 1U-2476A-1
CN4A
T11
TC1
T12
TC2
R58
T13
T14
FM FRONTEND
CN6
CB4C
TP1
TP2
TP3
TP4
IC12
IC2
T1
T2
IC1
IC3
VR1
T3
CB4C
to output Terminals
Distortion meter
Digital Voltmeter

1U-2476 TUNER UNIT ASS'Y (Component Side)


AM
GND
FM
TUNER UNIT
1U-2476A-2
REAR PANEL SIDE
MAIN UNIT
1U-2476A-1
T11
TC1
T12
TC2
R58
T13
T14
FM FRONTEND
CB4C
TP1
TP2
TP3
TP4
IC12
IC2
T1
T2
IC1
IC3
VR1
T3
CB4C

1. FM adjustment (BAND SELECTOR button: FM, STEREO / MONO MUTE button: AUTO)

Step	Adjustment item	Tuning point (Channel setting)	Input					Output		Adjustment location	Setting value	Notes
			Measuring instrument	Frequency	Input level	Modulation	Connection location	Measuring instrument	Connection location			
1	FM DC balance	98MHz	FM S.G.	98MHz	60dB μ	1kHz 75kHz DEV	FM antenna terminal	Digital Volt	TP.1, TP.2	T-1	0 ± 50 mV	Perform with monaural modulation signal
2	Distortion	〃	〃	〃	〃	〃	〃	Distortion factor meter	Output jack	T-2	Minimum distortion	〃
3	Repeat Steps 1 and 2.											
4	AUTO STOP level	98MHz	FM S.G.	98MHz	22dB μ	1kHz 75kHz DEV	FM antenna terminal	Check for the lighting of TUNED	Output jack	VR-1	Input level 22dB μ ±4dB	(Level at which TUNED lights up) Level at which the output is provided

2. MW adjustment (BAND SELECT button: MW)

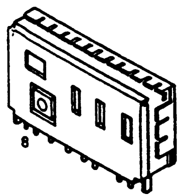
1	IF	Clear frequency (without a broadcast)	AM IF sweep	–	Level at which AGC is not applied	–	AM antenna terminal	Oscilloscope	⊕ TP.3 ⊖ TP.4	T-3	Waveform maximum and symmetry	
2	Band edge	522kHz	–	–	–	–	–	Digital voltmeter	⊕ R58 ⊖ G	T-14	1.2V	
		1611kHz								–	Approx. 8.2V	No place to adjust
3	Tracking	603kHz	AM S.G.	603kHz	Level at which AGC is not applied	400Hz 30%	Loop antenna	VTVM	Output terminal	T-12	Maximum output	
4	Tracking	1404kHz	〃	1404kHz	〃	〃	〃	〃	〃	TC-2	Maximum output	
5	Repeat Steps 3 and 4, and set the output to maximum.											

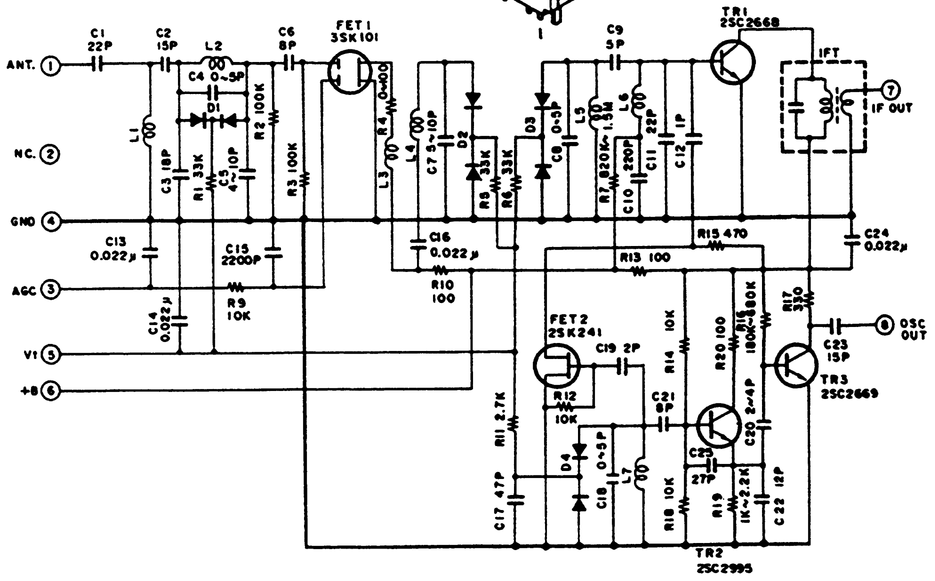
3. LW adjustment (BAND SELECT button: LW)

1	Band edge	153kHz	–	–	–	–	–	Digital voltmeter	⊕ TP.5 ⊖ TP.6	T-13	1.2V	
		279kHz								–	Approx. 7.0V	No place to adjust
2	Tracking	163kHz	AM S.G.	163kHz	Level at which AGC is not applied	400Hz 30%	Loop antenna	VTVM	Output terminal	T-11	Maximum output	
3	Tracking	270kHz	〃	270kHz	〃	〃	〃	〃	〃	TC-1	Maximum output	
4	Repeat Steps 2 and 3, and set the output to maximum.											

Front End
Part No.: 2160079005

No.	Name	No.	Name
1	ANT	5	Vt
2	ANT	6	+B
3	AGC	7	IF OUT
4	GND	8	OSC OUT

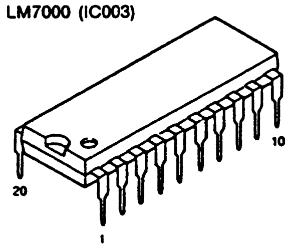


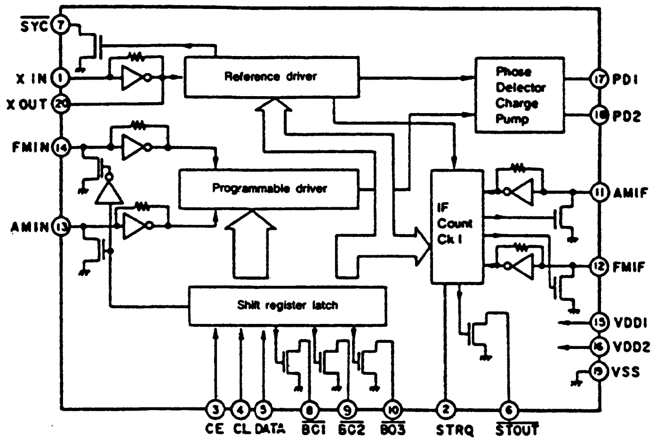

1
ANT. ①
NC. ②
GND ④
AGC ③
Vt ⑤
+B ⑥
C1 22P
C2 15P
L2
C4 0~5P
D1
L1
C3 18P
R1 33K
C5 4~10P
R2 100K
R3 100K
C6 8P
FET1 3SK101
R4 0~100
L3
L4
C7 5~10P
D2
R5 33K
R6 33K
D3
C8 0~5P
L5
R7 820K~1.5M
C10 220P
L6
C11 22P
C12 1P
C9 5P
TR1 2SC2668
IFT
⑦ IF OUT
C13 0.022μ
C14 0.022μ
C15 2200P
R9 10K
C16 0.022μ
R10 100
R13 100
R15 470
C24 0.022μ
R17 330
⑧ OSC OUT
C23 15P
TR3 2SC2669
FET2 2SK241
C19 2P
R12 10K
R11 2.7K
C17 47P
D4
C18 0~5P
L7
C21 8P
R14 10K
R20 100
R16 180K~680K
C20 2~4P
C25 27P
R18 10K
R19 1K~2.2K
C22 12P
TR2 2SC2995

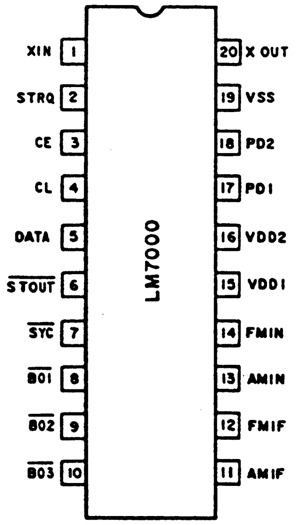
TUNER PRE SECTION

● IC's

LM7000 (IC003)



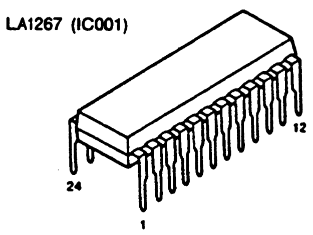

SYC
X IN
X OUT
FMIN
AMIN
Reference driver
Programmable driver
Shift register latch
Phase Detector Charge Pump
IF Count Ck I
PD1
PD2
AMIF
FMIF
VDD1
VDD2
VSS
CE
CL
DATA
BC1
BC2
B03
STRQ
STOUT

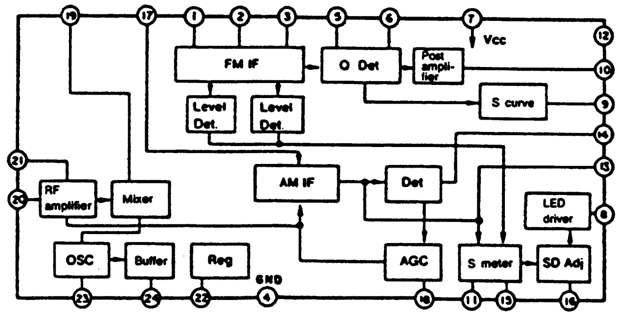

XIN 1
STRQ 2
CE 3
CL 4
DATA 5
STOUT 6
SYC 7
B01 8
B02 9
B03 10
20 X OUT
19 VSS
18 PD2
17 PD1
16 VDD2
15 VDD1
14 FMIN
13 AMIN
12 FMIF
11 AMIF
LM7000

Pin Description

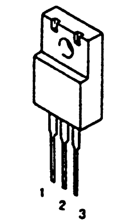
$\overline{\text{SYC}}$	:	Clock (400 kHz) for the controller
XIN. XOUT	:	X'tal oscillator (7.2 MHz) with built-in feedback resistor
FM IN. AM IN	:	Local oscillator signal input
CE. CL. DATA	:	Data input
$\overline{\text{B01}}$. $\overline{\text{B02}}$. $\overline{\text{B03}}$	:	Band data output. $\overline{\text{B01}}$ can be set as the time base output (8 Hz).
STRQ	:	IF counter request input
$\overline{\text{STOUT}}$	:	Auto research stop signal output
VDD1. VDD2. VSS	:	Power supply (VDD2 is a back-up power supply)
AMIF. FMIF	:	IF signal input
PD1. PD2	:	Charge pump output

LA1267 (IC001)

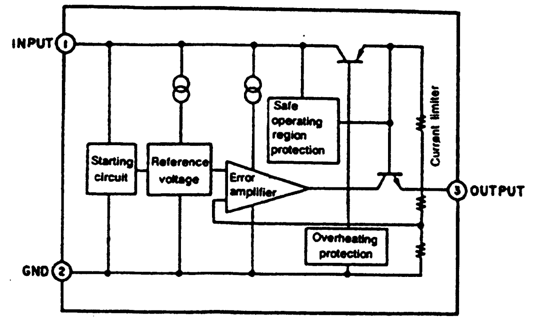



Vcc
FM IF
Q Det
Post amplifier
S curve
Level Det.
Level Det.
AM IF
Det
RF amplifier
Mixer
LED driver
OSC
Buffer
Reg
AGC
S meter
SD Adj
GND

NJM78M06FA (IC110)

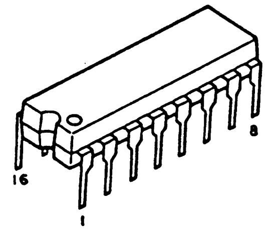


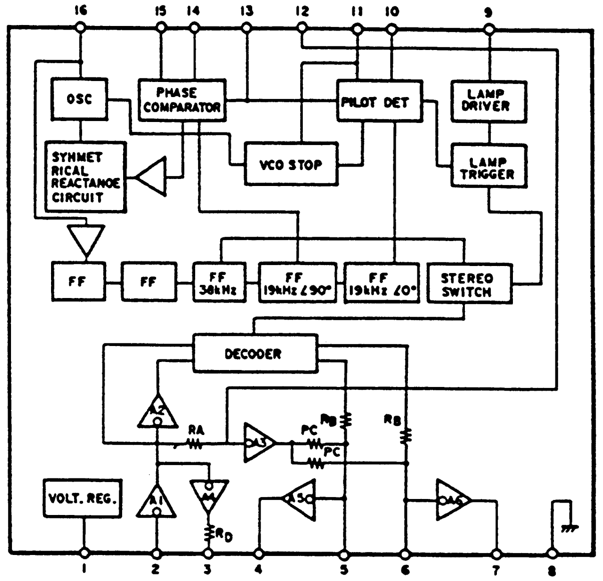
1: Input
2: GND
3: Output


INPUT
OUTPUT
GND
Starting circuit
Reference voltage
Error amplifier
Safe operating region protection
Overheating protection
Current limiter

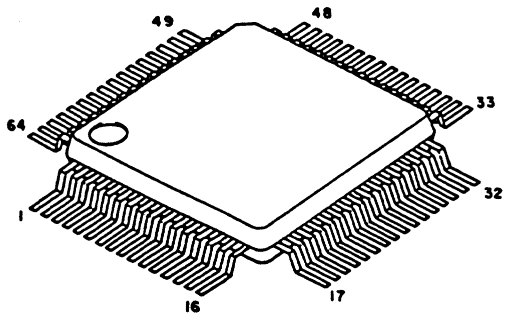
SEMICONDUCTORS

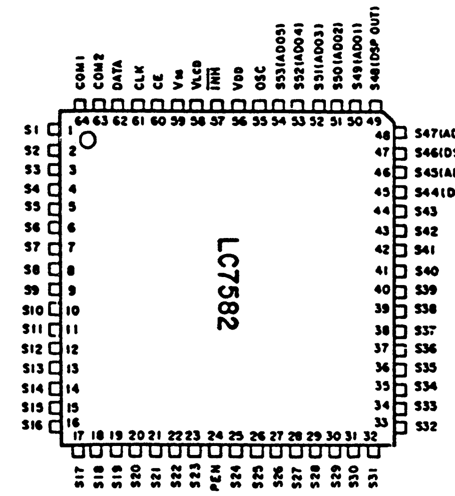
LA3410 (IC002)

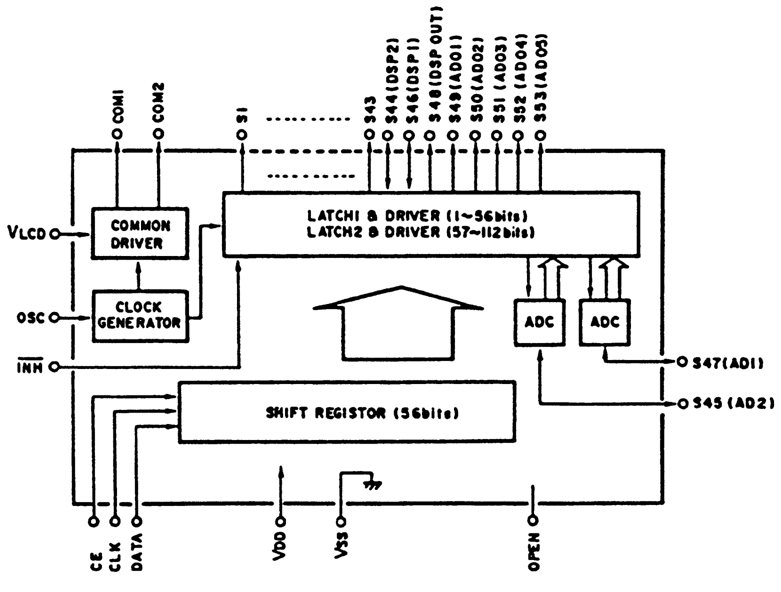



OSC
PHASE COMPARATOR
PILOT DET
LAMP DRIVER
SYMMETRICAL REACTANCE CIRCUIT
VCO STOP
LAMP TRIGGER
FF
FF
FF 38kHz
FF 19kHz ∠90°
FF 19kHz ∠0°
STEREO SWITCH
DECODER
VOLT. REG.
A1
A2
A3
A4
A5
A6
RA
RB
RC
RD

LC7582 (IC011)


49
48
33
64
32
1
16
17


LC7582
COM1
COM2
DATA
CLK
CE
VSS
VLCD
INH
VDD
OSC
S1
S16
S17
S31
S32
S43
S44(DSP2)
S45(AD2)
S46(DSP1)
S47(AD1)
S48(DSP OUT)
S49(AD01)
S50(AD02)
S51(AD03)
S52(AD04)
S53(AD05)
OPEN

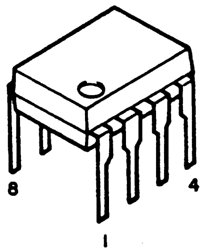

COM1
COM2
S1
S43
S44(DSP2)
S46(DSP1)
S48(DSP OUT)
S49(AD01)
S50(AD02)
S51(AD03)
S52(AD04)
S53(AD05)
VLCD
OSC
INH
COMMON DRIVER
CLOCK GENERATOR
LATCH1 & DRIVER (1~56bits)
LATCH2 & DRIVER (57~112bits)
ADC
ADC
S47(AD1)
S45(AD2)
SHIFT REGISTOR (56bits)
CE
CLK
DATA
VDD
VSS
OPEN

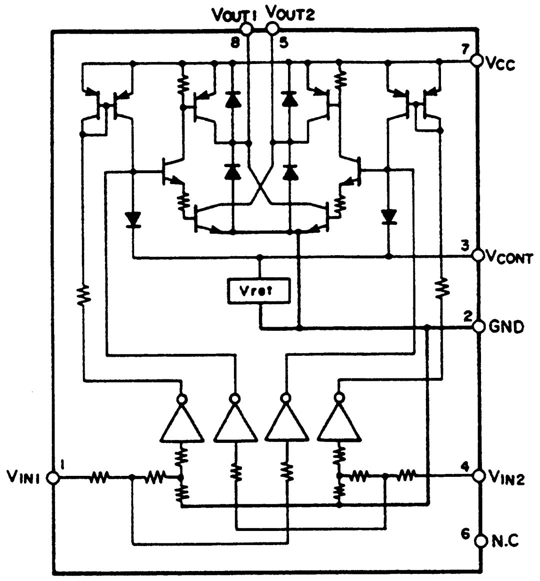
Pin Description

· S1 through S43	:	Segment output pins
· S46 (DSP1). S44 (DSP2)	:	Segment output or DSP input pins
· S47 (AD1). S45 (AD2)	:	Segment output or AD input pins
· S48 (DSPOUT)	:	Segment output of DSP output pin
· S49 through S53 (AD01 through 5)	:	Segment output or AD output pins
· COM1. 2	:	Common output pins (Only COM1 is used at time of 1/1 duty. and COM2 is set open)
· V_{LCD}	:	LCD bias voltage setting pin
· OSC	:	Oscillation pin
· CE. CLK. DATA	:	Input pin for serial data transfer
· V_{SS}. V_{DD}	:	Supply pins
· $\overline{\text{INH}}$	:	Display-off input pin. (Valid only with the output driver. This means that the transfer of serial data is possible while the display is off.)
· OPEN	:	No connection is made.

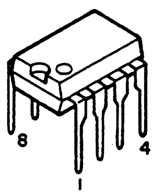
TUNER PRE SECTION

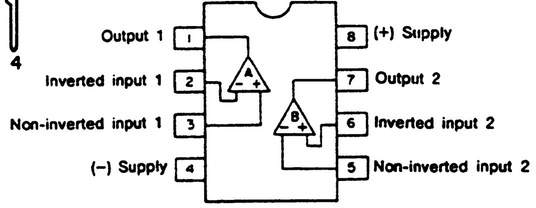
LB1639 (IC110)



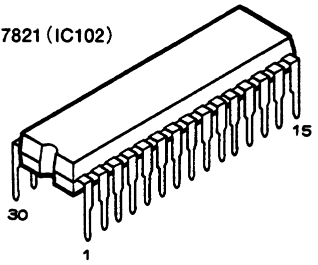

VOUT1 VOUT2
8
5
7
Vcc
3
VCONT
Vref
2
GND
VIN1
1
4
VIN2
6
N.C

NJM2082DD (IC101)
NJM2068DDC (IC104, 108)
BA15218 (IC103, 105)

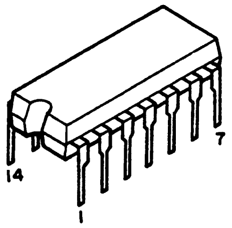


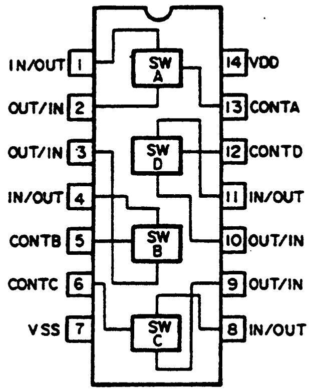

Output 1
1
Inverted input 1
2
Non-inverted input 1
3
(−) Supply
4
A
B
8
(+) Supply
7
Output 2
6
Inverted input 2
5
Non-inverted input 2

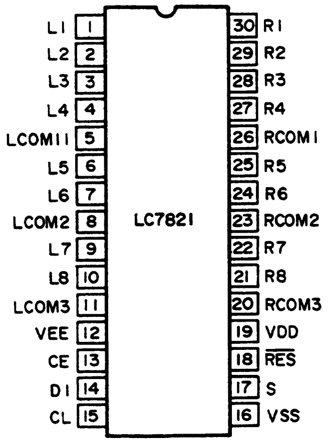
LC7821 (IC102)

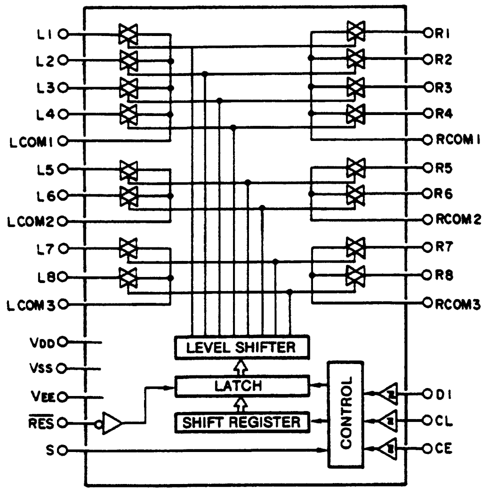


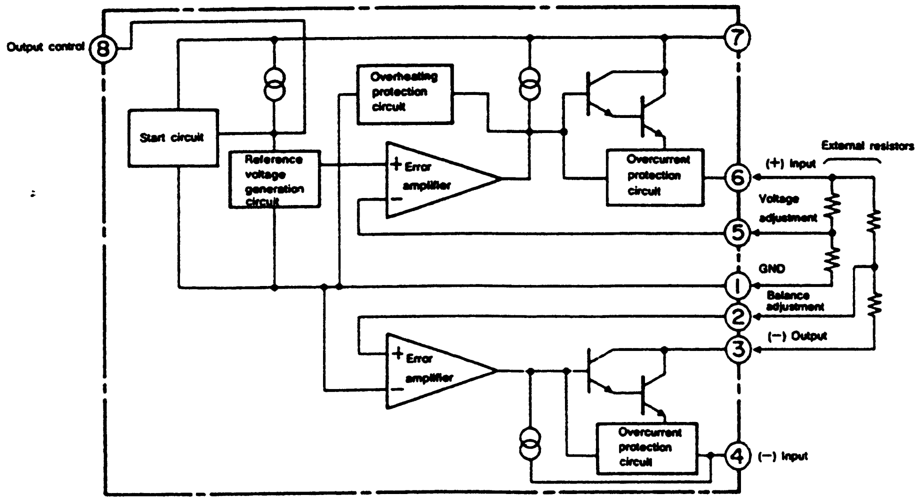
LC4966 (IC107)



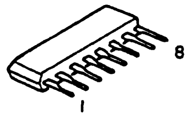

IN/OUT 1
OUT/IN 2
OUT/IN 3
IN/OUT 4
CONTB 5
CONTC 6
VSS 7
SW A
SW D
SW B
SW C
14 VDD
13 CONTA
12 CONTD
11 IN/OUT
10 OUT/IN
9 OUT/IN
8 IN/OUT

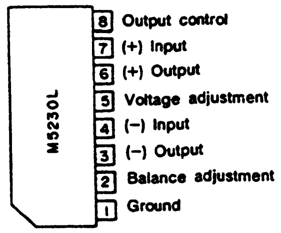

L1 1
L2 2
L3 3
L4 4
LCOM1 5
L5 6
L6 7
LCOM2 8
L7 9
L8 10
LCOM3 11
VEE 12
CE 13
DI 14
CL 15
LC7821
30 R1
29 R2
28 R3
27 R4
26 RCOM1
25 R5
24 R6
23 RCOM2
22 R7
21 R8
20 RCOM3
19 VDD
18 RES
17 S
16 VSS


L1
L2
L3
L4
LCOM1
L5
L6
LCOM2
L7
L8
LCOM3
VDD
VSS
VEE
RES
S
R1
R2
R3
R4
RCOM1
R5
R6
RCOM2
R7
R8
RCOM3
LEVEL SHIFTER
LATCH
SHIFT REGISTER
CONTROL
DI
CL
CE


Output control
8
7
Start circuit
Reference voltage generation circuit
Overheating protection circuit
+ Error amplifier −
Overcurrent protection circuit
External resistors
(+) Input
6
Voltage adjustment
5
GND
1
Balance adjustment
2
(−) Output
3
+ Error amplifier −
Overcurrent protection circuit
4
(−) Input

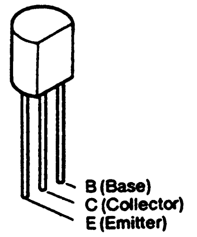
M5230L (IC114)



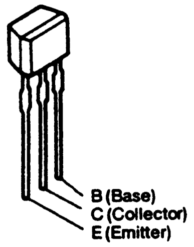

M5230L
8 Output control
7 (+) Input
6 (+) Output
5 Voltage adjustment
4 (−) Input
3 (−) Output
2 Balance adjustment
1 Ground

● Transistors

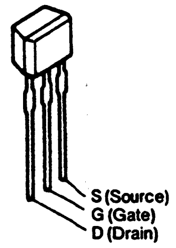
2SC461 (C)
2SC2878 (A/B)


B (Base)
C (Collector)
E (Emitter)

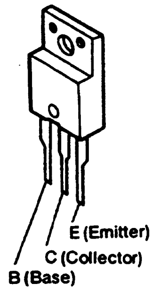
2SC2458 (BL)
2SA1048 (GR)


B (Base)
C (Collector)
E (Emitter)

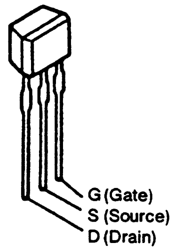
(FET)
2SK365 (BL/RG)


S (Source)
G (Gate)
D (Drain)

2SA1488(Y/GR)
2SC3851(Y/GR)

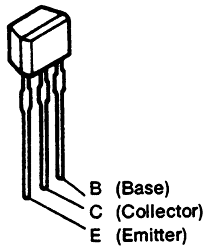

E (Emitter)
C (Collector)
B (Base)

2SK161 (GR)

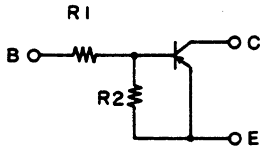

G (Gate)
S (Source)
D (Drain)

DTA144ES PAP Type

DTC144ES NPN Type

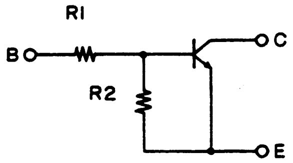

B (Base)
C (Collector)
E (Emitter)

PNP Type



	R1	R2
DTA144ES	47k ohm	47k ohm

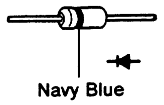
NPN Type



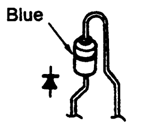
	R1	R2
DTC144ES	47k ohm	47k ohm

● Diodes (including LED)

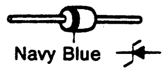
1SS270A



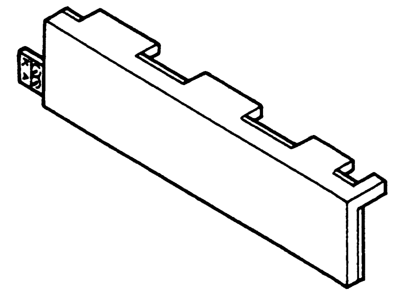
1SR35-200A



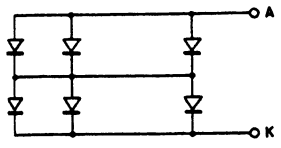
HZS3A-1
HZS6B-1
HZS9B-1



LED (SLF-351D)

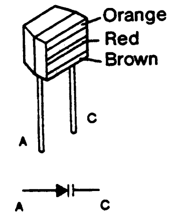


● Connection



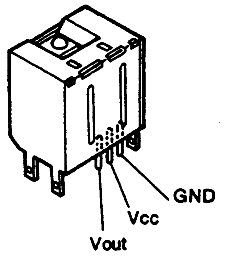
2 Series 22 Para = 44 Chip

SVC321SPA-D-2
(Varactor)

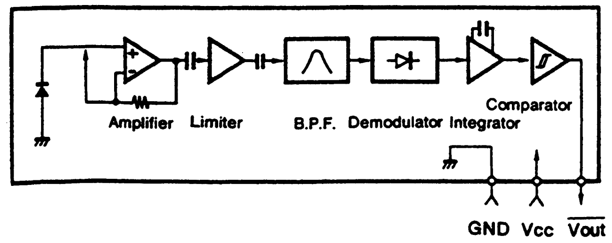

Orange
Red
Brown
A
C
A
C

● Infrared Remote Control Sensor

GP10521X
(IC112)

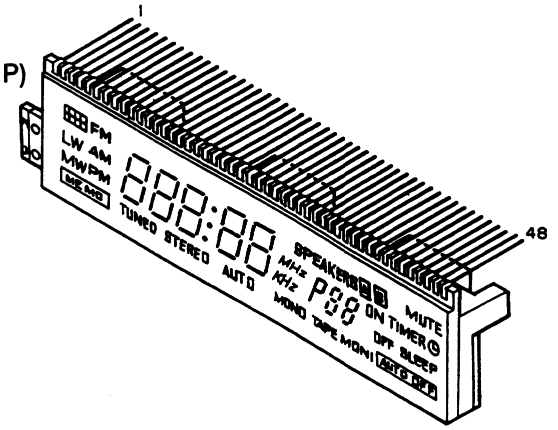

GND
Vcc
Vout

Structural Diagram

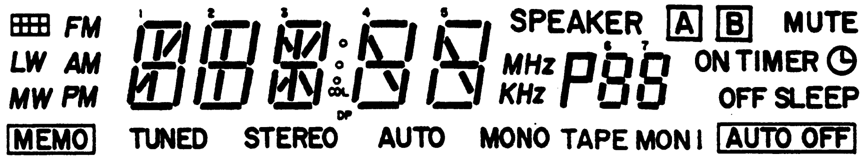

Amplifier
Limiter
B.P.F.
Demodulator
Integrator
Comparator
GND
Vcc
Vout

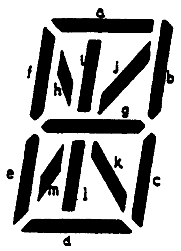
TUNER PRE SECTION

● **LCD ASS'Y**
Part No.: 3934142002 (8234JP)


1
48
FM
LW AM
MW PM
MEMO
TUNED
STEREO
AUTO
SPEAKER A B
MHz
KHz
MUTE
ON TIMER
OFF SLEEP
MONO
TAPE MONI
AUTO OFF

Segment division


FM
LW AM
MW PM
1
2
3
4
5
6
7
COL
DP
SPEAKER A B MUTE
MHz
KHz
ON TIMER
OFF SLEEP
MEMO
TUNED
STEREO
AUTO
MONO
TAPE MONI
AUTO OFF


a
b
c
d
e
f
g
h
i
j
k
l
m

● **LCD Pin Configuration**   Pin configuration definitions (segment side)

A/B	COM1	COM2
S 1	A11	A 4
S 2	A10	A 3
S 3	A 9	A 2
S 4	A 8	A 1
S 5	A 7	A 6
S 6	A 5	B 3
S 7	B 8	B 2
S 8	B 7	B 1
S 9	B 5	B 6
S10	B 9	B 4
S11	C12	C 4
S12	C11	C 3
S13	C 9	C 2
S14	C 8	C 1
S15	C 7	C 6
S16	C13	C10
S17	D 2	C 5
S18	I (STEREO)	D 1
S19	E 4	E 3
S20	E 7	E 2
S21	E 6	E 1
S22	E 9	E 8
S23	E 5	F 3
S24	F 7	F 2
S25	F 6	F 1
S26	F 4	F 8
S27	F 9	F 5
S28	G (MEMO)	H (TUNED)
S29	F (PM)	J (AUTO)
S30	D (AM)	E (MW)

A/B	COM1	COM2
S31	C (LW)	K (MONO)
S32	M (KHz)	N (MHz)
S33	A (□□)	L (DIRECT)
S34	G 4	G 3
S35	T (P)	O (SPEAKER)
S36	G 2	G 1
S37	G 7	G 6
S38	G 5	H 3
S39	Q (B)	P (A)
S40	H 7	H 2
S41	H 6	H 1
S42	S (OFF)	R (ON)
S43	H 4	H 5
S44	V (TIMER)	U (MUTE)
S45	W (□)	X (SLEEP)
S46	B (FM)	Y (AUTO OFF)
S47	–	–
S48	–	–
S49	–	–
S50	–	–
S51	–	–
S52	–	–
S53	–	–

B. Common side
COM1
COM2

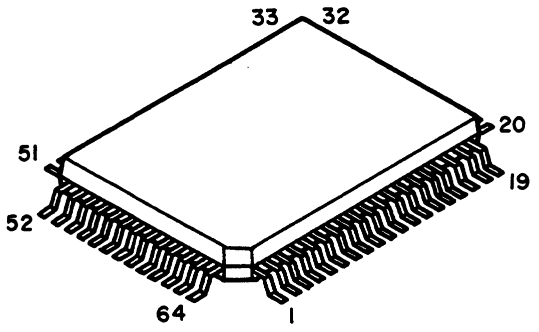
Pin Connection

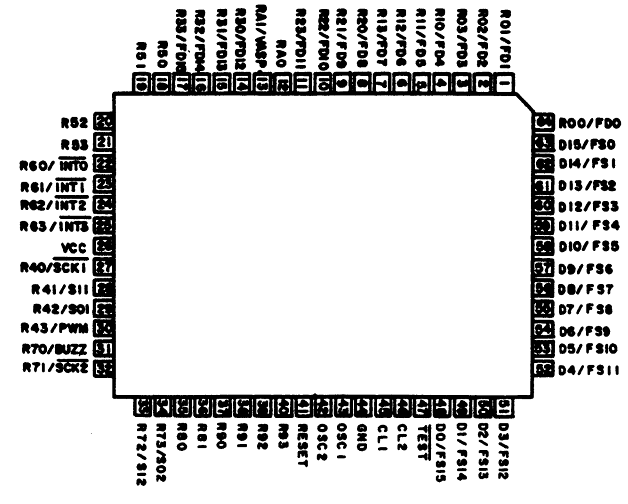
NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
COM1	–	COM	1l	1m	1g	1i	1j	1c	2g	2i	2c	2l	3l	3m	3h	3i	3j	3k	DP	STEREO	4d	4h	4b	4k
COM2	COM	–	1d	1e	1f	1a	1b	2e	2f	2a	2b	2d	3d	3e	3f	3a	3b	3g	3c	COL	4e	4f	4a	4g

NO	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
COM1	4c	5h	5b	5d	5k	MEMO	PM	AM	LW	KHZ		6d	P	6f	6g	6c	B	7g	7b	OFF	7d	TIMER		FM
COM2	5e	5f	5a	5g	5c	TUNED	AUTO	MW	MONO	MHZ	TAPE MONI	6e	SPEAKER	6a	6b	7e	SUB	7f	7a	ON	7c	MUTE	SLEEP	AUTO OFF

MICROPROCESSOR DOCUMENTATION

HD404729FS Part No.: 2621624106
(IC012)


33
32
20
19
51
52
64
1


R01/FD1
R02/FD2
R03/FD3
R10/FD4
R11/FD5
R12/FD6
R13/FD7
R20/FD8
R21/FD9
R22/FD10
R23/FD11
RA0
RA1/VASP
R30/FD12
R31/FD13
R32/FD14
R33/FD16
R50
R51
R52
R53
R60/INT0
R61/INT1
R62/INT2
R63/INT3
VCC
R40/SCK1
R41/SI1
R42/SO1
R43/PWM
R70/BUZZ
R71/SCK2
R72/SI2
R73/SO2
R80
R81
R90
R91
R92
R93
RESET
OSC 2
OSC 1
GND
CL1
CL2
TEST
D0/FS15
D1/FS14
D2/FS13
D3/FS12
D4/FS11
D5/FS10
D6/FS9
D7/FS8
D8/FS7
D9/FS6
D10/FS5
D11/FS4
D12/FS3
D13/FS2
D14/FS1
D15/FS0
R00/FD0

1. Overview

The functions of this microcomputer are made up of the following four pillars.

a. Tuner Functions
- These functions perform the required control for the reception of FM and AM broadcasts.

b. Auto Functions
- Positioned at the heart of the system stereo, the auto functions perform serial communications with other components (such as the deck, CD, and amplifier) to provide overall control.
- These functions decode the signals from the remote control and send them to each component of the system.

c. Timer Functions
- Counts the clock of the 24-hour display.
- Provides 2 types of timer operation: once and sleep.

d. Display Function
- Outputs the control signal of the LCD.

Note 1: When buttons "ENTER/NEXT" and "MEMORY" of the wiring diagram are pressed simultaneously and the power cord is inserted into the power outlet, the frequencies used for the tracking adjustment will automatically be registered in the preset memory as indicated below.
Use this information for tuning and other procedures.

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
MW LW (kHz)	522	603	999	1,098	1,404	1,611	153	163	270	279
	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20
FM (MHz)	87.50	89.00	98.00	100.10	108.00	87.50	254	163	87.50	87.50
	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
MW (kHz)	522	522	522	522	522	522	522	522	522	522

2. Receiving Band Table

Band	Receiving frequency	Local oscillator frequency	IF frequency	Frequency division ratio	Comparison frequency	Step frequency	Other
FM	87.50～108.00 MHz	98.20～118.70 MHz	10.7 MHz	1/2	25 kHz	100 kHz	STEREO
MW	522～1611 kHz	972～2061 kHz	450 kHz	–	9 kHz	9 kHz	
LW	153～279 kHz	603～729 kHz	450 kHz	–	1 kHz	1 kHz	

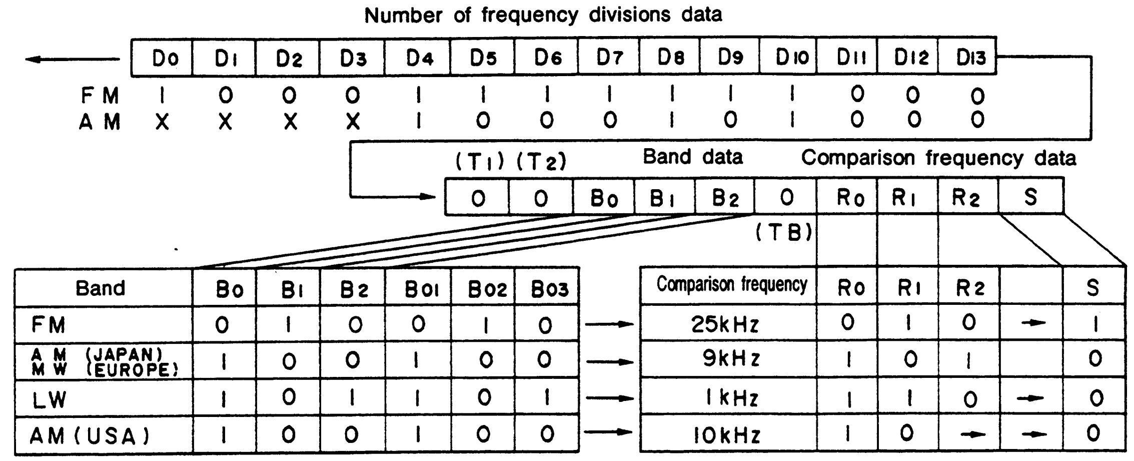
3. Signals sent to the LM7000 Programmable Divider

a. Signals to the programmable divider are sent from 3 sources: CE OUT, CLOCK OUT, and DATA OUT.

b. The programmable divider takes in DATA at CLOCK _⌠‾ , when CE equals 1.

c. The data is a 24-bit serial signal which is taken in to the programmable divider from the LSB.
(At the AM setting, D_0 through D_3 are ignored, so that D_4 becomes the LSB.)

d. The data is made up of the number of frequency divisions data, the band data, and the comparison frequency data. (See diagram below.)

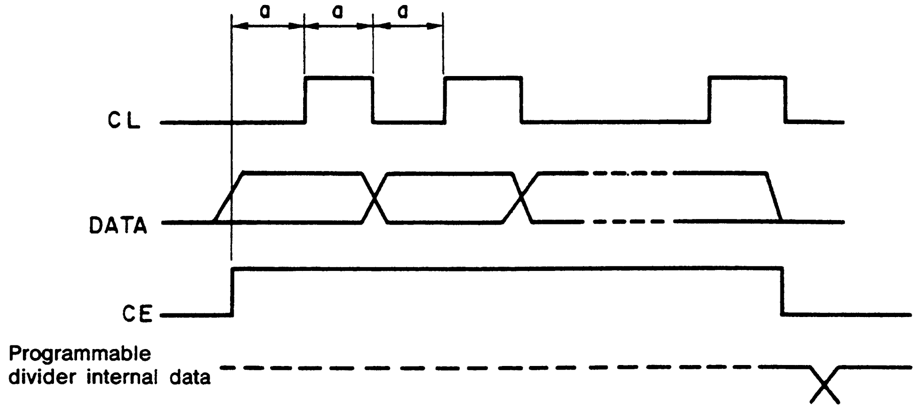


	D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13
FM	1	0	0	0	1	1	1	1	1	1	1	0	0	0
AM	X	X	X	X	1	0	0	0	1	0	1	0	0	0

(T1)	(T2)	B0	B1	B2	0 (TB)	R0	R1	R2	S
0	0	B0	B1	B2	0	R0	R1	R2	S

Band	B0	B1	B2	B01	B02	B03		Comparison frequency	R0	R1	R2		S
FM	0	1	0	0	1	0	→	25kHz	0	1	0	→	1
AM (JAPAN) MW (EUROPE)	1	0	0	1	0	0	→	9kHz	1	0	1		0
LW	1	0	1	1	0	1	→	1kHz	1	1	0	→	0
AM (USA)	1	0	0	1	0	0	→	10kHz	1	0	→	→	0

e. Timing for sending
$a = 2.5\,\mu sec$



Description of Key and Selection Switch Inputs

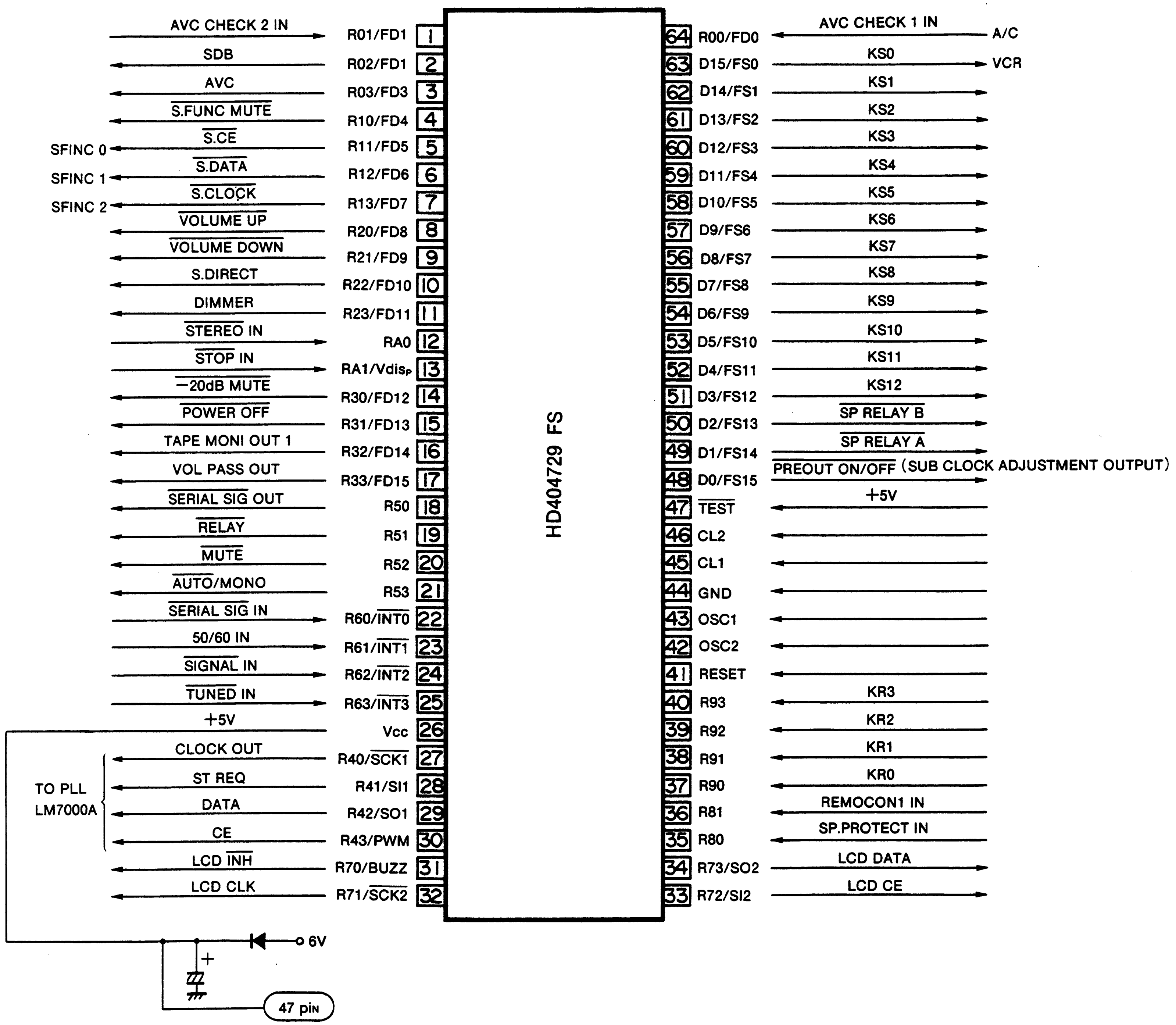
No.	Function Name	Function
1	TAPE MONI	Pressing this button selects whether the tape monitor is on or off. ∗When the tape monitor is on, TAPE MONI OUT1 is high. ∗When the tape monitor is off, TAPE MONI OUT1 is low.
2	FREQ UP	∗In the tuner mode, this function shifts the reception frequency upwards in steps of 1. After the button has been depressed for 0.5 seconds or longer, the frequency changes continuously, then from the point at which the button is released the tuner enters the auto tuning mode. Pressing the button again will set the step operation.
3	FREQ. DOWN	∗In the tuner mode, this function shifts the reception frequency downwards in steps of 1. After the button has been depressed for 0.5 seconds or longer, the frequency changes continuously, then from the point at which the button is released the tuner enters the auto tuning mode. Pressing the button again will set the step operation.
4	BAND	This function operates cyclicly to command switching to the FM, AM (MW), and LW reception modes.
5	MODE	During FM reception this function commands switching of the reception mode to the stereo/mono auto mode and the forced mono mode.
6	SDB	Pressing this button selects whether SDB is on or off. With SDB on, high level is output. With SDB off, low level is output.
7	CLEAR	This function commands a clearing of the timer setting contents.
8	TIMER	When you would like the timer to operate only once at the set time, this button causes a shift to this setting mode. A one-course setting is possible.
9	ENTER/NEXT	This function is used to advance to the next step during the clock setting or the setting of the timer.
10	POWER	This is the RELAY OUT button which switches on and off the power of the other system components.
11	STAND BY	Pressing this button selects whether the timer operation is on or off. When timer operation is desired, pressing this button causes the standby mark in the LCD to light.
12	MEMORY	∗During the tuner mode, this function causes a shift to the mode in which the station currently being received is registered in the preset memory. The "MEMORY" indication will flash and registration will be achieved when the P1−P10 and P+10 buttons are pressed.
13	FUNC	This function operates cyclicly to switch the function of the amplifier.
14	DISPLAY	This function switches the time display and the mode display.

TUNER PRE SECTION

Pin Description (HD404729FS---)

Pin No.	Port Name	Function Name	Function
1	R01/FD1	AVC CHECK IN2	AVC on/off signal input pin.
2	R02/FD2	SDB	SDB control output.
3	R03/FD3	AVC	Outputs a high level at time of FUNCTION AVC.
4	R10/FD4	S.FUNC.MUTE OUT	FUNCTION MUTE output pin.
5	R11/FD5	S.CE	CE output for LC7821-L.
6	R12/FD6	S.DATA	Data output for LC7821-L.
7	R13/FD7	S.CLOCK	Clock output for LC7821-L.
8	R20/FD8	VOLUME UP OUT	Output for motor drive up.
9	R21/FD9	VOLUME DOWN OUT	Output for motor drive down.
10	R22/FD10	S.DIRECT	Direct mode switching output.
11	R23/FD11	DIMMER OUT	Dimmer mode switching output.
12	RA0	STEREO IN	STEREO indication signal input.
13	RA1/Vdisp	STOP IN	PTOP signal input.
14	R30/FD12	20DB MUTE OUT	20 dB muting output pin.
15	R31/FD13	POWER OFF OUT	Power on/off control output.
16	R32/FD14	MONI OUT1	High level output when tape monitor is on.
17	R33/FD15	VOL PASS OUT	Volume pass output control pin.
18	R50	SERIAL SIG OUT	Denon bus out pin.
19	R51	RELAY OUT	Provides a toggle operation in sync with the POWER button to control the AC relay.
20	R52	MUTE OUT	Muting output pin of the tuner audio output.
21	R53	AUTO/MONO OUT	Auto/Mono switching output pin.
22	R60/INT0	SERIAL SIG IN	Denon bus input pin.
23	R61/INT1	50/60 IN	50Hz/60 Hz pulse input pin.
24	R62/INT2	SIGNAL IN	Tuner signal input pin.
25	R63/INT3	TUNED IN	Tuning signal input pin.
26	VCC		5 V
27	R40/SCK1	PLL CLOCK OUT	Clock output pin for PLL.
28	R41/SI1	PLL ST REQ OUT	Request output pin for PLL.
29	R42/SO1	PLL DATA OUT	Data output pin for PLL.
30	R43/PWM	PLL CE OUT	CE output pin for PLL.
31	R70/BUZZ	LCD INH OUT	INH output for LCD (LC7582).
32	R71/SCK2	LCD CLOCK OUT	Clock output for LCD (LC7582).
33	R72/SI2	LCD CE OUT	CE output for LCD (LC7582).
34	R73/SO2	LCD DATA OUT	Data output for LCD (LC7582).
35	R80	PROTECT IN	Speaker protect input pin.
36	R81	REMOCON1 IN	Remote control 1 input pin.
37	R90	KRO	Key return 0.
38	R91	KR1	Key return 1.
39	R92	KR2	Key return 2.
40	R93	KR3	Key return 3.
41	RESET		Reset input pin.
42	OSC2		4 MHz Cell lock.
43	OSC1		4 MHz Cell lock.
44	GND		Ground
45	CL1		32 kHz xtal
46	CL2		32 kHz xtal
47	TEST		5 V
48	D0/FS15	PRE OUT ON/OFF	Pre out control output.
49	D1/FS14	SP RELAY A OUT	Speaker A control output.
50	D2/FS13	SP RELAY B OUT	Speaker B control output.
51	D3/FS12	KS12	Key strobe 12.
52	D4/FS11	KS11	Key strobe 11.
53	D5/FS10	KS10	Key strobe 10.
54	D6/FS9	KS9	Key strobe 9.
55	D7/FS8	KS8	Key strobe 8.
56	D8/FS7	KS7	Key strobe 7.
57	D9/FS6	KS6	Key strobe 6.
58	D10/FS5	KS5	Key strobe 5.
59	D11/FS4	KS4	Key strobe 4.
60	D12/FS3	KS3	Key strobe 3.
61	D13/FS2	KS2	Key strobe 2.
62	D14/FS1	KS1	Key strobe 1.
63	D15/FS0	KS0	Key strobe 0.
64	R00/FD0	AVC CHECK IN1	AVC on/off signal input pin.

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM


HD404729 FS
AVC CHECK 2 IN
R01/FD1 1
SDB
R02/FD1 2
AVC
R03/FD3 3
S.FUNC MUTE
R10/FD4 4
SFINC 0
S.CE
R11/FD5 5
SFINC 1
S.DATA
R12/FD6 6
SFINC 2
S.CLOCK
R13/FD7 7
VOLUME UP
R20/FD8 8
VOLUME DOWN
R21/FD9 9
S.DIRECT
R22/FD10 10
DIMMER
R23/FD11 11
STEREO IN
RA0 12
STOP IN
RA1/Vdisp 13
−20dB MUTE
R30/FD12 14
POWER OFF
R31/FD13 15
TAPE MONI OUT 1
R32/FD14 16
VOL PASS OUT
R33/FD15 17
SERIAL SIG OUT
R50 18
RELAY
R51 19
MUTE
R52 20
AUTO/MONO
R53 21
SERIAL SIG IN
R60/INT0 22
50/60 IN
R61/INT1 23
SIGNAL IN
R62/INT2 24
TUNED IN
R63/INT3 25
+5V
Vcc 26
TO PLL LM7000A
CLOCK OUT
R40/SCK1 27
ST REQ
R41/SI1 28
DATA
R42/SO1 29
CE
R43/PWM 30
LCD INH
R70/BUZZ 31
LCD CLK
R71/SCK2 32
6V
47 pin
64 R00/FD0
AVC CHECK 1 IN
A/C
63 D15/FS0
KS0
VCR
62 D14/FS1
KS1
61 D13/FS2
KS2
60 D12/FS3
KS3
59 D11/FS4
KS4
58 D10/FS5
KS5
57 D9/FS6
KS6
56 D8/FS7
KS7
55 D7/FS8
KS8
54 D6/FS9
KS9
53 D5/FS10
KS10
52 D4/FS11
KS11
51 D3/FS12
KS12
50 D2/FS13
SP RELAY B
49 D1/FS14
SP RELAY A
48 D0/FS15
PREOUT ON/OFF (SUB CLOCK ADJUSTMENT OUTPUT)
47 TEST
+5V
46 CL2
45 CL1
44 GND
43 OSC1
42 OSC2
41 RESET
40 R93
KR3
39 R92
KR2
38 R91
KR1
37 R90
KR0
36 R81
REMOCON1 IN
35 R80
SP.PROTECT IN
34 R73/SO2
LCD DATA
33 R72/SI2
LCD CE

KEY & SWITCH MATRIX DEFINE

	KS0	KS1	KS2	KS3	KS4	KS5	KS6	KS7	KS8	KS9	KS10	KS11	KS12
KR0	1	5	9	PRESET SCAN	FREQ UP	PRESET UP	CLOCK/ DISPLAY	POWER	HITACHI	USA	LD	FUNC	
KR1	2	6	10 (0)	AM (MW)	FREQ DOWN	PRESET DOWN	ONCE (TIMER)	STAND-BY	SP. REMOCON	EUROPE	EX	S. DIRECT	MEMORY
KR2	3	7	+10 (AM/PM)	FM	BAND	SDB	ENTER/ NEXT	DIMMER	CD−RETRY	FREQ	EX−PHONO	SP−A	−20dB MUTE
KR3	4	8	TAPE MONI	LW	MODE	CLEAR	SLEEP		OEM	ADJUST	X'TAL	SP−B	PRE OUT ON/OFF

KEY, SWITCH MATRIX

(1) KEY
KS0−KR0 = 1
KS0−KR1 = 2
KS0−KR2 = 3
KS0−KR3 = 4

KS1−KR0 = 5
KS1−KR1 = 6
KS1−KR2 = 7
KS1−KR3 = 8

KS2−KR0 = 9
KS2−KR1 = 10 (0)
KS2−KR2 = +10 (AM/PM)
* KS2−KR3 = TAPE MONITOR

KS3−KR0 = PRESET SCAN
KS3−KR1 = AM (MW)
KS3−KR2 = FM
KS3−KR3 = LW

KS4−KR0 = FREQ UP
KS4−KR1 = FREQ DOWN
KS4−KR2 = BAND
KS4−KR3 = MODE

KS5−KR0 = PRESET UP
KS5−KR1 = PRESET DOWN
* KS5−KR2 = SDB
KS5−KR3 = CLEAR

KS6−KR0 = CLOCK/DISPLAY
KS6−KR1 = ONCE (TIMER)
* KS6−KR2 = ENTER/NEXT
KS6−KR3 = SLEEP

KS7−KR0 = POWER
KS7−KR1 = STANDBY
KS7−KR2 = DIMMER

(2) SW
* KS8−KR0 = HITACHI
KS8−KR1 = SP−REMOCON
KS8−KR2 = CD−RETRY
KS8−KR3 = OEM

KS9−KR0 = USA
KS9−KR1 = EUROPE
KS9−KR2 = FREQ
KS9−KR3 = ADJUST

KS10−KR0 = LD
KS10−KR1 = EX
* KS10−KR2 = EX−PHONO
KS10−KR3 = X'TAL

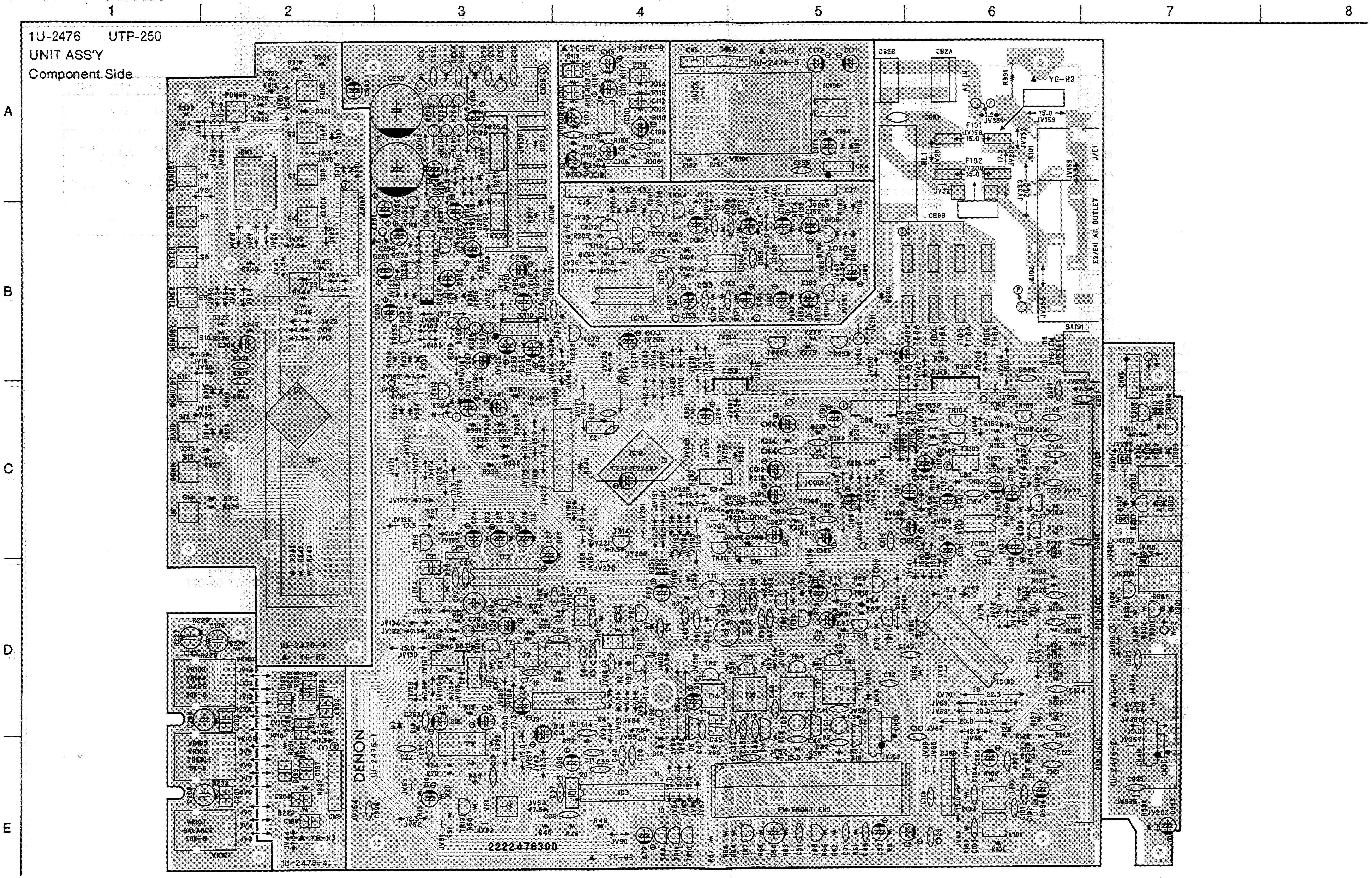
(3) KEY
KS11−KR0 = FUNCTION
KS11−KR1 = S. DIRECT
KS11−KR2 = SP−A
KS11−KR3 = SP−B

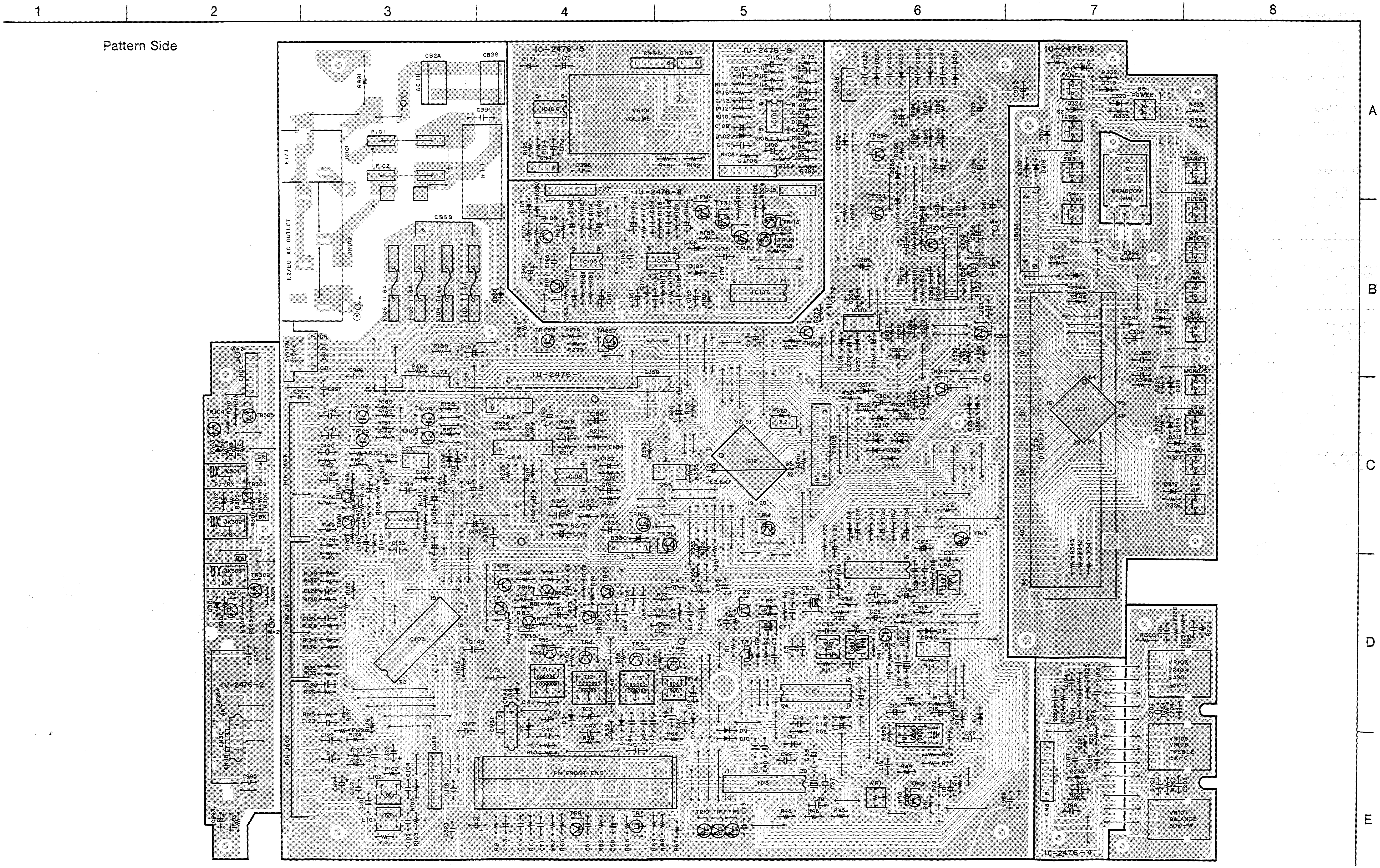
KS12−KR1 = MEMORY
KS12−KR2 = −20dB MUTE
KS12−KR3 = PRE OUT ON/OFF

TUNER PRE SECTION

PRINTED WIRING BOARD

1U-2476 UTP-250
UNIT ASS'Y
Component Side


1
2
3
4
5
6
7
8
A
B
C
D
E
1U-2476-3
1U-2476-4
1U-2476-1
1U-2476-2
1U-2476-5
1U-2476-8
1U-2476-9
YG-H3
DENON
2222476300
FM FRONT END
IC1
IC2
IC3
IC12
IC101
IC102
IC104
IC105
IC106
IC107
IC108
IC109
IC110
C271 (E2/EK)
STANDBY
CLEAR
ENTER
TIMER
MEMORY
MONO/ST
BAND
DOWN
UP
POWER
FUNC
TAPE
SDB
CLOCK
VR103 VR104 BASS 30K-C
VR105 VR106 TREBLE 5K-C
VR107 BALANCE 50K-W
AC IN
F101
F102
F103 T1.6A
F104 T1.6A
F105 T1.6A
F106 T1.6A
J/E1
E2/EI AC OUTLET
SK101
CD SYSTEM BUCKET
PIN JACK
ANT
JK101
JK102
JK301
JK302
JK303
JK304



Pattern Side

1
2
3
4
5
6
7
8
A
B
C
D
E
AC IN
E1/J
JK101
E2/EU AC OUTLET
JK102
F101
F102
RL1
CB2A
CB2B
CB6B
F106 T1.6A
F105 T1.6A
F104 T1.6A
F103 T1.6A
SYSTEM SOCKET
1U-2476-5
IC106
VR101 VOLUME
CN64
CN3
1U-2476-9
IC101
CJ108
1U-2476-8
IC105
IC104
IC107
1U-2476-1
1U-2476-3
S1 FUNC
S2 TAPE
S3 SDB
S4 CLOCK
S5 POWER
S6 STANDBY
S7 CLEAR
S8 ENTER
S9 TIMER
S10 MEMORY
S11 MONO/ST
S12 BAND
S13 DOWN
S14 UP
REMOCON RM1
CN101A
FLD DISPLAY
IC11
IC12
IC1
IC2
IC3
IC4
IC102
IC103
IC108
IC110
X2
PIN JACK
1U-2476-2
JK301 TX/RX
JK302 TX/RX
JK303 AVC
JK304 ANT
FM FRONT END
1U-2476-4
VR103 VR104 BASS 50K-C
VR105 VR106 TREBLE 5K-C
VR107 BALANCE 50K-W
VR1

TUNER PRE SECTION

NOTE ON PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W. Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

- **Resistors**

Ex.: RN 14K 2E 182 G FR

RN: Type
14K: Shape and performance
2E: Power
182: Resistance
G: Allowable error
FR: Others

Type	Power	Allowable error	Others
RD : Carbon Film RC : Composition RS : Metallic oxide Film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse-resistor F : Lead wire forming

※ **Resistance**

1 8 2 ⇨ 1800 ohm = 1.8 kohm

2: Indicates number of zeros after effective number
1 8: 2-digit effective number

- Units: ohm

1 R 2 ⇨ 1.2 ohm

2: 1-digit effective number.
1 R: 2-digit effective number, decimal point indicated by R.

- Units: ohm

※ **Capacity (electrolyte only)**

2 2 R ⇨ 2200 µF

R: Indicates number of zeros after effective number.
2 2: 2-digit effective number.

- Units: µF

2 R 2 ⇨ 2.2 µF

2: 1-digit effective number.
2 R: 2-digit effective number, decimal point indicated by R.

- Units: µF

- **Capacitors**

Ex.: CE 04W 1H 2R2 M BP

CE: Type
04W: Shape and performance
1H: Dielectric strength
2R2: Capacity
M: Allowable error
BP: Others

Type	Dielectric strength	Allowable error	Others
CE : Aluminum foil electrolyte CA : Aluminum solid electrolyte CS : Tantalum electrolyte CQ : Film CK : Ceramic	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency
CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF = : Others	U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

※ **Capacity (except electrolyte)**

2 R 2 ⇨ 2200pF = 2200 µF = 0.002 µF

2 (More than 2): Indicates number of zeros after effective number.
2 R: 2-digit effective number.

- Units: µF

2 2 1 ⇨ 220pF

1 (0 or 1): Indicates number of zeros after effective number.
2 2: 2-digit effective number.

- Units: pF
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

1U-2476A P.W.B UNIT ASSY PARTS LIST

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC001	263 0421 002	IC LA1267	
IC002	263 0584 004	IC LA3410	
IC003	262 0703 002	IC LM7000	
IC011	263 0533 000	IC LC7582	
IC012	262 1624 106	IC HD404729FS---	µ-com
IC101	263 0743 007	IC NJM2082DD	
IC102	262 1808 003	IC LC7821N	
IC103	263 0712 009	IC :RC4558P	
IC104	263 0609 002	IC NJM2068DDC	
IC105	263 0712 009	IC :RC4558P	
IC106	263 0476 002	IC LB1639	
IC107	263 0359 006	IC LC4966	
IC108	263 0609 002	IC NJM2068DDC	
IC109	263 0646 007	IC M5230L	
IC110	263 0586 002	IC NJM78M06FA	Regulator +6V
TR001	275 0051 909	FET 2SK161(GR)	
TR002	273 0025 926	Transister 2SC461(C)	
TR003	273 0317 906	Transister 2SC2458(BL)	
TR004	273 0317 906	Transister 2SC2458(BL)	
TR005	273 0317 906	Transister 2SC2458(BL)	
TR006	273 0317 906	Transister 2SC2458(BL)	
TR007	275 0053 907	FET 2SK365(BL/GR)	
TR008	273 0317 906	Transister 2SC2458(BL)	
TR009	269 0093 904	Transister DTA144ES (47k-47k)	
TR010	269 0093 904	Transister DTA144ES (47k-47k)	
TR011	269 0093 904	Transister DTA144ES (47k-47k)	
TR012	273 0317 906	Transister 2SC2458(BL)	
TR013	273 0317 906	Transister 2SC2458(BL)	
TR014	269 0093 904	Transister DTA144ES (47k-47k)	
TR015	273 0317 906	Transister 2SC2458(BL)	
TR016	273 0317 906	Transister 2SC2458(BL)	
TR017	273 0317 906	Transister 2SC2458(BL)	
TR018	273 0317 906	Transister 2SC2458(BL)	
TR019	269 0040 902	Transister DTC144ES (47k-47k)	
TR020	273 0317 906	Transister 2SC2458(BL)	
TR021	273 0317 906	Transister 2SC2458(BL)	
TR101	273 0253 918	Transister 2SC2878(A/B)	
TR102	273 0253 918	Transister 2SC2878(A/B)	
TR103	273 0253 918	Transister 2SC2878(A/B)	
TR104	273 0253 918	Transister 2SC2878(A/B)	
TR105	273 0253 918	Transister 2SC2878(A/B)	
TR106	273 0253 918	Transister 2SC2878(A/B)	
TR107	273 0253 918	Transister 2SC2878(A/B)	
TR108	273 0253 918	Transister 2SC2878(A/B)	
TR109	269 0093 904	Transister DTA144ES (47k-47k)	
TR110	269 0040 902	Transister DTC144ES (47k-47k)	
TR111	269 0040 902	Transister DTC144ES (47k-47k)	
TR112	269 0093 904	Transister DTA144ES (47k-47k)	
TR113	269 0093 904	Transister DTA144ES (47k-47k)	
TR114	269 0040 902	Transister DTC144ES (47k-47k)	
TR251	274 0060 900	Transister 2SD667A(C)	
TR252	272 0053 908	Transister 2SB647A(C)	
TR253	273 0338 008	Transister 2SC3851(Y)/(G)	
TR254	273 0338 008	Transister 2SC3851(Y)/(G)	
TR255	269 0040 902	Transister DTC144ES (47k-47k)	
TR257	269 0040 902	Transister DTC144ES (47k-47k)	
TR258	273 0198 918	Transister 2SC1815(BL)	
TR259	273 0317 906	Transister 2SC2458(BL)	
TR301	269 0040 902	Transister DTC144ES (47k-47k)	
TR302	269 0040 902	Transister DTC144ES (47k-47k)	
TR303	269 0040 902	Transister DTC144ES (47k-47k)	
TR304	269 0040 902	Transister DTC144ES (47k-47k)	
TR305	269 0040 902	Transister DTC144ES (47k-47k)	
TR311	269 0093 904	Transister DTA144ES (47k-47k)	
TR312	273 0317 906	Transister 2SC2458(BL)	
D002	276 0302 004	Varactor SVC321SPA-D-2	
D003	276 0302 004	Varactor SVC321SPA-D-2	
D004	276 0302 004	Varactor SVC321SPA-D-2	
D005	276 0302 004	Varactor SVC321SPA-D-2	
D006	276 0432 903	Diode 1SS270A	
D007	276 0432 903	Diode 1SS270A	
D008	276 0432 903	Diode 1SS270A	
D009	276 0432 903	Diode 1SS270A	
D010	276 0432 903	Diode 1SS270A	
D103	276 0432 903	Diode 1SS270A	
D104	276 0432 903	Diode 1SS270A	
D105	276 0531 901	Diode 1SS254	
D251	276 0553 905	Diode 1SR35-200A	
D252	276 0553 905	Diode 1SR35-200A	
D253	276 0553 905	Diode 1SR35-200A	
D254	276 0553 905	Diode 1SR35-200A	
D256	276 0468 906	Zener Diode HZS9B-1	9 V
D257	276 0432 903	Diode 1SS270A	
D258	276 0432 903	Diode 1SS270A	
D259	276 0432 903	Diode 1SS270A	
D260	276 0432 903	Diode 1SS270A	
D301	276 0462 902	Zener Diode HZS6B-1	6 V
D302	276 0462 902	Zener Diode HZS6B-1	6 V
D303	276 0462 902	Zener Diode HZS6B-1	6 V
D310	276 0452 909	Zener Diode HZS3A-1	3 V
D312	276 0462 902	Zener Diode HZS6B-1	6 V
D313	276 0462 902	Zener Diode HZS6B-1	6 V
D314	276 0462 902	Zener Diode HZS6B-1	6 V
D315	276 0462 902	Zener Diode HZS6B-1	6 V
D316	276 0432 903	Diode 1SS270A	
D317	276 0432 903	Diode 1SS270A	
D318	276 0432 903	Diode 1SS270A	
D319	276 0432 903	Diode 1SS270A	
D320	276 0432 903	Diode 1SS270A	
D321	276 0432 903	Diode 1SS270A	
D322	276 0432 903	Diode 1SS270A	
D331	276 0432 903	Diode 1SS270A	
D333	276 0432 903	Diode 1SS270A	
D335	276 0432 903	Diode 1SS270A	
D380	276 0432 903	Diode 1SS270A	
D381	276 0432 903	Diode 1SS270A	
D391	276 0432 903	Diode 1SS270A	
D399	276 0370 007	Diode 1SS106	
JV125	276 0432 903	Diode 1SS270A	
JV205	276 0432 903	Diode 1SS270A	
	393 9470 009	LED	LED
	393 4142 002	LCD 8234 JP	LCD
RM001	499 0172 002	GP1U521X	Remocon Receiver
RESISTORS GROUP (Not included Carbon Film ±5%,1/4W Type. Refer to the Scematic Diagram for those Parts.)			
△R021	241 2376 964	Carbon Film 47 ohm 1/4W(NB)	RD14B2E470JNBS
△R260	241 2387 940	Carbon Film 4.7 ohm 1W (NB)	RD14B2E4R7JNBS
△R262	244 2055 938	Metal Oxide 6.8 ohm 1W (NB)	RS14B3A6R8JNBS(S)
△R263	244 2055 938	Metal Oxide 6.8 ohm 1W (NB)	RS14B3A6R8JNBS(S)
△R264	244 2055 938	Metal Oxide 6.8 ohm 1W (NB)	RS14B3A6R8JNBS(S)
△R265	244 2055 938	Metal Oxide 6.8 ohm 1W (NB)	RS14B3A6R8JNBS(S)
△R266	244 2061 016	Metal Oxide 150 ohm 1W (NB)	RS14B3A151JNBS
△R267	244 2052 928	Metal Oxide 47 ohm 1W (NB)	RS14B3A470JNBS(S)
△R268	244 2055 938	Metal Oxide 6.8 ohm 1W (NB)	RS14B3A6R8JNBS(S)
△R269	244 2055 938	Metal Oxide 6.8 ohm 1W (NB)	RS14B3A6R8JNBS(S)
△R270	244 2044 979	Metal Oxide 5.6 ohm 1W (NB)	RS14B3A5R6JNBS(S)
△R271	244 2050 933	Metal Oxide 180 ohm 1W (NB)	RS14B3A181JNBS(S)
△R280	244 2050 920	Metal Oxide 120 ohm 1W (NB)	RS14B3A121JNBS(S)
VR001	211 6087 915	Semi Fixed Resistor 22k ohm	V06PB223
VR101	211 0749 107	Variable Resistor 100k ohm	
VR103	211 0769 006	Variable Resistor 30k ohm	Bass
VR105	211 0768 007	Variable Resistor 5 k ohm	Treble
VR107	211 9105 001	Variable Resistor 50 k ohm	
CAPACITORS GROUP			
C001	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C002	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C003	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C004	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C005	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C006	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z

TUNER PRE SECTION

Ref. No.	Part No.	Part Name	Remarks
C007	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C008	254 4260 964	Electrolytic 3.3µF/50 V	CE04W1H3R3M
C009	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C010	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C011	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C012	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C013	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C014	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C015	254 4260 977	Electrolytic 4.7µF/50 V	CE04W1H4R7M
C016	254 4260 964	Electrolytic 3.3µF/50 V	CE04W1H3R3M
C018	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C019	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C020	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C021	253 9030 976	BC Ceramic 0.015µF/25 V	CK45=1E153K
C022	253 9031 920	BC Ceramic 0.1µF/25 V	CK45=1E104K
C023	253 4536 941	Ceramic 15 pF/50 V	CC45SL1H150J
C024	254 4260 964	Electrolytic 3.3µF/50 V	CE04W1H3R3M
C025	254 4260 935	Electrolytic 0.47µF/50 V	CE04W1HR47M
C026	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C027	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C028	253 1182 903	Ceramic 0.047µF/50 V	CK45==473Z
C029	254 4254 938	Electrolytic 47µF/16 V	CE04W1C470M
C030	254 3053 907	Electrolytic 10µF/16 V (Bi Pola)	CE04D1C100MBP
C031	255 4201 984	Plastic Film 560pF/50 V	CQ93P1H561J
C032	253 1179 961	Ceramic 330pF/50 V	CK45B1H331K
C033	253 1179 961	Ceramic 330pF/50 V	CK45B1H331K
C034	253 1179 961	Ceramic 330pF/50 V	CK45B1H331K
C037	253 4536 941	Ceramic 15 pF/50 V	CC45SL1H150J
C038	253 4536 941	Ceramic 15 pF/50 V	CC45SL1H150J
C039	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C040	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C041	253 4432 906	Ceramic 68 pF/50 V	CC45SL1H680J
C042	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C043	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C044	253 4444 907	Ceramic 220 pF/50 V	CC45SL1H221J
C045	253 4441 900	Ceramic 160 pF/50 V	CC45SL1H161J
C046	255 4201 942	Plastic Film 390pF/50 V	CQ93P1H391J
C047	253 4536 941	Ceramic 15 pF/50 V	CC45SL1H150J
C048	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C049	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C050	254 3056 917	Electrolytic 1µF/50 V (Bi Pola)	CE04D1H010MBP
C051	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C053	254 4254 938	Electrolytic 47µF/16 V	CE04W1C470M
C060	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C061	253 9031 962	BC Ceramic 2700pF/25 V	CK45=1E272K
C062	253 9031 962	BC Ceramic 2700pF/25 V	CK45=1E272K
C063	253 9031 959	BC Ceramic 1800pF/25 V	CK45=1E182K
C064	253 9031 959	BC Ceramic 1800pF/25 V	CK45=1E182K
C065	253 9031 946	BC Ceramic 1200pF/25 V	CK45=1E122K
C066	253 9031 946	BC Ceramic 1200pF/25 V	CK45=1E122K
C067	254 4260 935	Electrolytic 0.47µF/50 V	CE04W1HR47M
C068	254 4260 935	Electrolytic 0.47µF/50 V	CE04W1HR47M
C069	254 4254 938	Electrolytic 47µF/16 V	CE04W1C470M
C071	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C072	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C073	254 4254 938	Electrolytic 47µF/16 V	CE04W1C470M
C075	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C099	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C103	253 4443 908	Ceramic 200 pF/50 V	CC45SL1H201J
C104	253 4443 908	Ceramic 200 pF/50 V	CC45SL1H201J
C105	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C106	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C107	254 4250 929	Electrolytic 100µF/6.3 V	CE04W0J101M
C108	254 4250 929	Electrolytic 100µF/6.3 V	CE04W0J101M
C111	255 1213 904	Plastic Film 0.012µF/50 V	CQ93M1H123J
C112	255 1213 904	Plastic Film 0.012µF/50 V	CQ93M1H123J
C113	255 1206 908	Plastic Film 0.0033µF/50 V	CQ93M1H332J
C114	255 1206 908	Plastic Film 0.0033µF/50 V	CQ93M1H332J
C115	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C116	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C117	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C118	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C121	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C122	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J

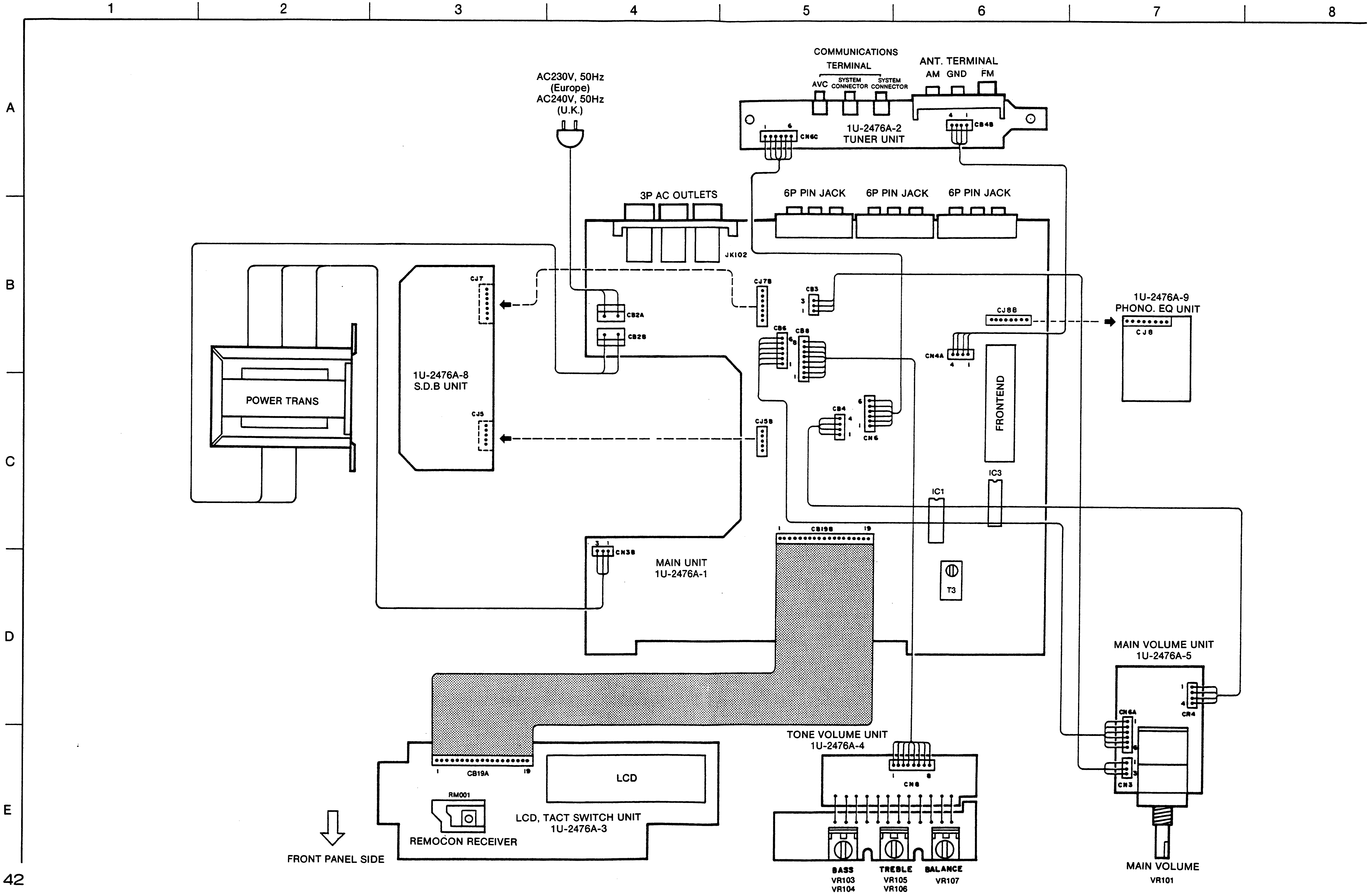
Ref. No.	Part No.	Part Name	Remarks
C123	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C124	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C125	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C126	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C131	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C132	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C133	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C134	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C135	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C136	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C139	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C140	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C141	253 9030 947	BC Ceramic 4700 pF/25 V	CK45=1E472K
C142	253 9030 947	BC Ceramic 4700 pF/25 V	CK45=1E472K
C143	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C151	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C152	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C153	253 1179 961	Ceramic 330pF/50 V	CK45B1H331K
C154	253 1179 961	Ceramic 330pF/50 V	CK45B1H331K
C155	253 4537 911	Ceramic 30 pF/50 V	CC45SL1H300J
C156	253 4537 911	Ceramic 30 pF/50 V	CC45SL1H300J
C159	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C160	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C161	254 4260 935	Electrolytic 0.47µF/50 V	CE04W1HR47M
C162	254 4260 935	Electrolytic 0.47µF/50 V	CE04W1HR47M
C163	254 4260 922	Electrolytic 0.33µF/50 V	CE04W1HR33M
C164	254 4260 922	Electrolytic 0.33µF/50 V	CE04W1HR33M
C165	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C166	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C167	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C171	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C172	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C173	254 4252 927	Electrolytic 47µF/10 V	CE04W1A470M
C175	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C176	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z
C181	255 1265 978	Plastic Film 0.022µF/50 V	CQ93M1H223J(B)
C182	255 1265 978	Plastic Film 0.022µF/50 V	CQ93M1H223J(B)
C183	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C184	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C185	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C186	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C187	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C188	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J
C189	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C190	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C191	254 4256 907	Electrolytic 10µF/25 V	CE04W1E100M
C192	254 4256 907	Electrolytic 10µF/25 V	CE04W1E100M
C193	256 1034 995	Metalized 0.15µF/50 V	CF93A1H154J
C194	256 1034 995	Metalized 0.15µF/50 V	CF93A1H154J
C195	254 3056 917	Electrolytic 1µF/50 V (Bi Pola)	CE04D1H010MBP
C196	254 3056 917	Electrolytic 1µF/50 V (Bi Pola)	CE04D1H010MBP
C197	256 1034 953	Metalized 0.068µF/50 V	CF93A1H683J
C198	256 1034 953	Metalized 0.068µF/50 V	CF93A1H683J
C199	255 1203 901	Plastic Film 0.0018µF/50 V	CQ93M1H182J
C200	255 1203 901	Plastic Film 0.0018µF/50 V	CQ93M1H182J
C201	255 1213 904	Plastic Film 0.012µF/50 V	CQ93M1H123J
C202	255 1213 904	Plastic Film 0.012µF/50 V	CQ93M1H123J
C203	254 3056 904	Electrolytic 0.47µF/50 V (Bi Pola)	CE04D1HR47MBP
C204	254 3056 904	Electrolytic 0.47µF/50 V (Bi Pola)	CE04D1HR47MBP
C251	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C252	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C253	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C254	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z
C255	257 4259 700	Electrolytic 2200µF/35V	CE04W1V222MC
C256	254 4258 785	Electrolytic 470µF/35V	CE04W1V471MC
C257	254 4258 918	Electrolytic 10µF/35 V	CE04W1V100M
C258	254 4256 907	Electrolytic 10µF/25 V	CE04W1E100M
C259	254 4281 901	Electrolytic 1µF/50 V	CE04W1H010M(KME)
C260	254 4256 907	Electrolytic 10µF/25 V	CE04W1E100M
C261	254 4258 918	Electrolytic 10µF/35 V	CE04W1V100M
C262	254 4256 907	Electrolytic 10µF/25 V	CE04W1E100M
C263	254 4256 907	Electrolytic 10µF/25 V	CE04W1E100M
C264	254 4260 980	Electrolytic 10µF/50 V	CE04W1H100M
C265	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M

Ref. No.	Part No.	Part Name	Remarks	Q'ty
C266	254 4274 947	Electrolytic 10µF/16 V	CE04W1C100M(KME)	
C267	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M	
C268	254 4274 947	Electrolytic 10µF/16 V	CE04W1C100M(KME)	
C269	254 4256 907	Electrolytic 10µF/25 V	CE04W1E100M	
C270	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M	
C271	254 4252 066	Electrolytic 470µF/10 V	CE04W1A471M	
C272	253 9031 920	BC Ceramic 0.1µF/25 V	CK45=1E104K	
C291	255 1200 904	Plastic Film 0.001µF/50 V	CQ93M1H102J	
C292	255 1200 904	Plastic Film 0.001µF/50 V	CQ93M1H102J	
C301	254 4252 927	Electrolytic 47µF/10 V	CE04W1A470M	
C302	254 4252 927	Electrolytic 47µF/10 V	CE04W1A470M	
C303	253 1181 904	Ceramic 0.01µF/50 V	CK45F1H103Z	
C304	254 4302 958	Electrolytic 47µF/10 V	CE04W1A470M(SRE)	
C305	253 1180 905	Ceramic 680pF/50 V	CK45B1H681K	
C319	253 1180 921	Ceramic 1000pF/50 V	CK45B1H102K	
C320	254 4260 922	Electrolytic 0.33µF/50 V	CE04W1HR33M	
C321	254 4260 977	Electrolytic 4.7µF/50 V	CE04W1H4R7M	
C322	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M	
C323	253 1180 921	Ceramic 1000pF/50 V	CK45B1H102K	
C325	254 4327 904	Electrolytic 1000µF/6.3V	CE04W0J102M(SMG)	
C327	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J	
C328	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M	
C331	253 4536 983	Ceramic 22 pF/50 V	CC45SL1H220J	
C332	253 4536 983	Ceramic 22 pF/50 V	CC45SL1H220J	
C380	254 4256 907	Electrolytic 47µF/10 V	CE04W1A470M	
C393	253 1181 917	Ceramic 0.022µF/50 V	CK45F1H223Z	
⚠C991	253 8014 702	Ceramic 0.01µF/400V(AC)	CK45F2GAC103MC	
C992	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M	
C993	253 1180 921	Ceramic 1000pF/50 V	CK45B1H102K	
C994	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M	
C995	253 1024 003	Ceramic 0.01µF/50 V	CK45F1H103Z	
C995	253 1180 921	Ceramic 1000pF/50 V	CK45B1H102K	
C996	253 1024 003	Ceramic 0.01µF/50 V	CK45F1H103Z	
C997	253 1024 003	Ceramic 0.01µF/50 V	CK45F1H103Z	
C998	253 1180 921	Ceramic 1000pF/50 V	CK45B1H102K	
TC01	213 0041 063	Trimmer Capacitor		1
TC02	213 0034 009	Trimmer Capacitor	CTZ-51C	1
OTHERS GROUP				
		(P.W.Board)		1
L011	235 0020 990	Inductor 393J		1
L012	235 0020 990	Inductor 393J		1
L101	235 9003 002	FTZ Choke Coil		1
L102	235 9003 002	FTZ Choke Coil		1
S001~005	212 5604 910	Tact Switch		5
S006~014	212 5606 905	Tact Switch		9
	202 0040 909	Fuse Clip		4
	417 0307 066	Heat Sink		1
	473 8007 009	Cup Screw 3X12		2
	204 8278 009	6 P Pin Jack(S-GND)		3
⚠F102	206 1015 003	Fuse 0.5 A		1
⚠F101	206 1015 058	Fuse 1.6 A(T)		1
⚠J106	203 3950 002	3 P AC Outlet		1
JK301	204 8422 004	Mini Jack(sw)	For AVC	1
JK302	204 8421 005	Mini Jack	For System	1
JK303	204 8421 005	Mini Jack	For System	1
⚠RL101	214 0120 013	Relay(TV-8)		1
X001	399 0075 003	Crystal Vibrator(7.2 MHz)		1
X002	399 9018 003	Ceramic Vibrator CST4.00 MGW		1
	205 0603 002	3 P Ant. Terminal(DIN)		1
CF001 CF002	261 0004 007	Ceramic Filter	SFT10.7MS2	2
CF004	261 0031 001	Ceramic Filter	BFU450C4	1
CF005	261 0079 005	Ceramic Filter	CSB456F11	1
T001	231 2905 008	FM IF DET(A)		1
T002	231 2906 007	FM IF DET(B)		1
T003	231 1132 005	AM IFT(SFL450J3)		1
T011	231 1133 004	LW Ant. Trans		1
T012	231 0923 008	MW Ant. Trans		1
T013	231 1135 002	LW Osc Coil		1
T014	231 1130 007	MW Osc Coil		1

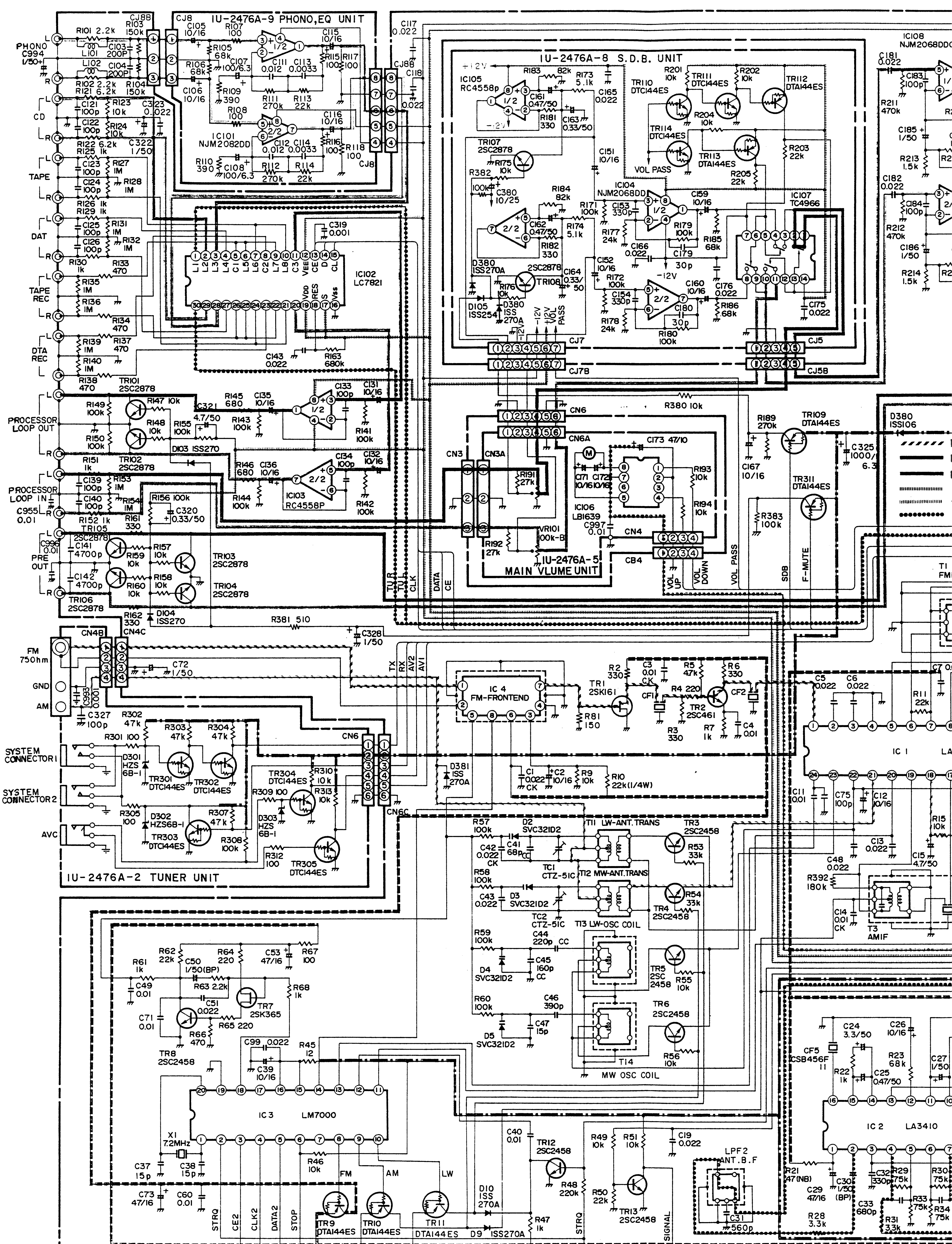
Ref. No.	Part No.	Part Name	Remarks	Q'ty
	216 0079 005	FM Front End(U)		1
	232 0152 005	Anti. Birdie Filter		1
CB003	205 0343 032	3 P Conn. Base(KR-PH)		1
CB004C	205 0343 045	4 P Conn. Base(KR-PH)		2
CB006	205 0343 061	6 P Conn. Base(KR-PH)		1
CB008	205 0343 087	8 P Conn. Base(KR-PH)		1
CJ005	205 0536 072	5 P Conn. Socket		1
CJ5B	205 0535 073	5 P Conn. Base		1
CJ007	205 0536 085	7 P Conn. Socket		1
CJ7B	205 0535 086	7 P Conn. Base		1
CJ8B	205 0535 002	8 P Conn. Base		1
CJ8	205 0536 001	8 P Conn. Socket		1
CB19B	205 0736 018	19 P FFC Conn. Base		1
CB019A	205 0491 078	19 P FFC Conn. Base		1
CB2A	205 0624 007	:2 P AC Conn. Base		1
CB2B	205 0581 001	2 P VH Conn. Base		1
CB3B	205 0277 030	3 P EH Conn. Base(RD)		1
CN3	203 4640 010	3 P PH-SAN Shield Cord		1
CN6A	204 0383 002	6 P PH-SAN Conn. Cord		1
CN4	203 6233 014	4 P SAN-PH Cord		1
CN8	204 2512 020	8 P KR-DA Conn. Cord		1
CN6C	204 0316 011	6 P DA-DA Conn. Cord		1
W101	001 9007 133	V.Wire(UL1430.AWG22)	Black L=110	1
W102	001 9007 146	V.Wire(UL1430.AWG22)	Black L=90	1
W103	209 0151 035	2 C Ribon Cable		1
W104	209 0162 011	Shield Wire Assy		1
W201	203 0338 025	Connecting Cord Assy	Brown L=100	1
	001 0077 049	Vinyl Wire	Gray L=80	1
CN4A,B	205 0185 041	4 P Wire Holder		2
	415 9036 031	Glass Tube D=2.0 L=5	for R266	1
	125 9002 007	UL Tube(L=10)		4
	461 0415 007	Rubber Sheet		3
	513 0815 005	Fuse Label(0.5 A)		1
	513 0815 089	Fuse Label(T1.6 A)		1

TUNER PRE SECTION

WIRING DIAGRAM


1
2
3
4
5
6
7
8
A
B
C
D
E
COMMUNICATIONS TERMINAL
AVC
SYSTEM CONNECTOR
SYSTEM CONNECTOR
ANT. TERMINAL
AM
GND
FM
1U-2476A-2
TUNER UNIT
CN6C
CB4B
AC230V, 50Hz
(Europe)
AC240V, 50Hz
(U.K.)
3P AC OUTLETS
6P PIN JACK
6P PIN JACK
6P PIN JACK
JK102
CJ7
CB2A
CB2B
CJ7B
CB3
CB6
CB8
CJ8B
CN4A
1U-2476A-9
PHONO. EQ UNIT
CJ8
POWER TRANS
1U-2476A-8
S.D.B UNIT
CJ5
CJ5B
CB4
CN6
FRONTEND
IC3
IC1
CB19B
CN3B
MAIN UNIT
1U-2476A-1
T3
MAIN VOLUME UNIT
1U-2476A-5
CN6A
CR4
CN3
CB19A
LCD
RM001
LCD, TACT SWITCH UNIT
1U-2476A-3
REMOCON RECEIVER
FRONT PANEL SIDE
TONE VOLUME UNIT
1U-2476A-4
CN8
BASS
VR103
VR104
TREBLE
VR105
VR106
BALANCE
VR107
MAIN VOLUME
VR101

SCHEMATIC D


1
2
3
4
5
6
IU-2476A-9 PHONO,EQ UNIT
IU-2476A-8 S.D.B. UNIT
IU-2476A-5 MAIN VLUME UNIT
IU-2476A-2 TUNER UNIT
PHONO
CD
TAPE
DAT
TAPE REC
DTA REC
PROCESSOR LOOP OUT
PROCESSOR LOOP IN
PRE OUT
FM 75Ohm
GND
AM
SYSTEM CONNECTOR1
SYSTEM CONNECTOR2
AVC
IC101 NJM2082DD
IC102 LC7821
IC103 RC4558P
IC104 NJM2068DD
IC105 RC4558p
IC106 LB1639
IC107 TC4966
IC108 NJM2068DD
IC 4 FM-FRONTEND
IC 1
IC 2 LA3410
IC3 LM7000
TI1 LW-ANT.TRANS
TI2 MW-ANT.TRANS
TI3 LW-OSC COIL
T14 MW OSC COIL
T3 AMIF
LPF2 ANT.B.F
CF5 CSB456F
X1 7.2MHz
VR101 100k-B
VOL PASS
SDB
F-MUTE
VOL UP
VOL DOWN
TU R
TU L
CLK
DATA
CE
TX
RX
AV2
AV1
STRQ
CE2
CLK2
DATA2
STOP
SIGNAL
FM
AM
LW
CN3
CN3A
CN4
CB4
CN4B
CN4C
CN6
CN6A
CN6C
CJ5
CJ5B
CJ7
CJ7B
CJ8
CJ8B
CJ88

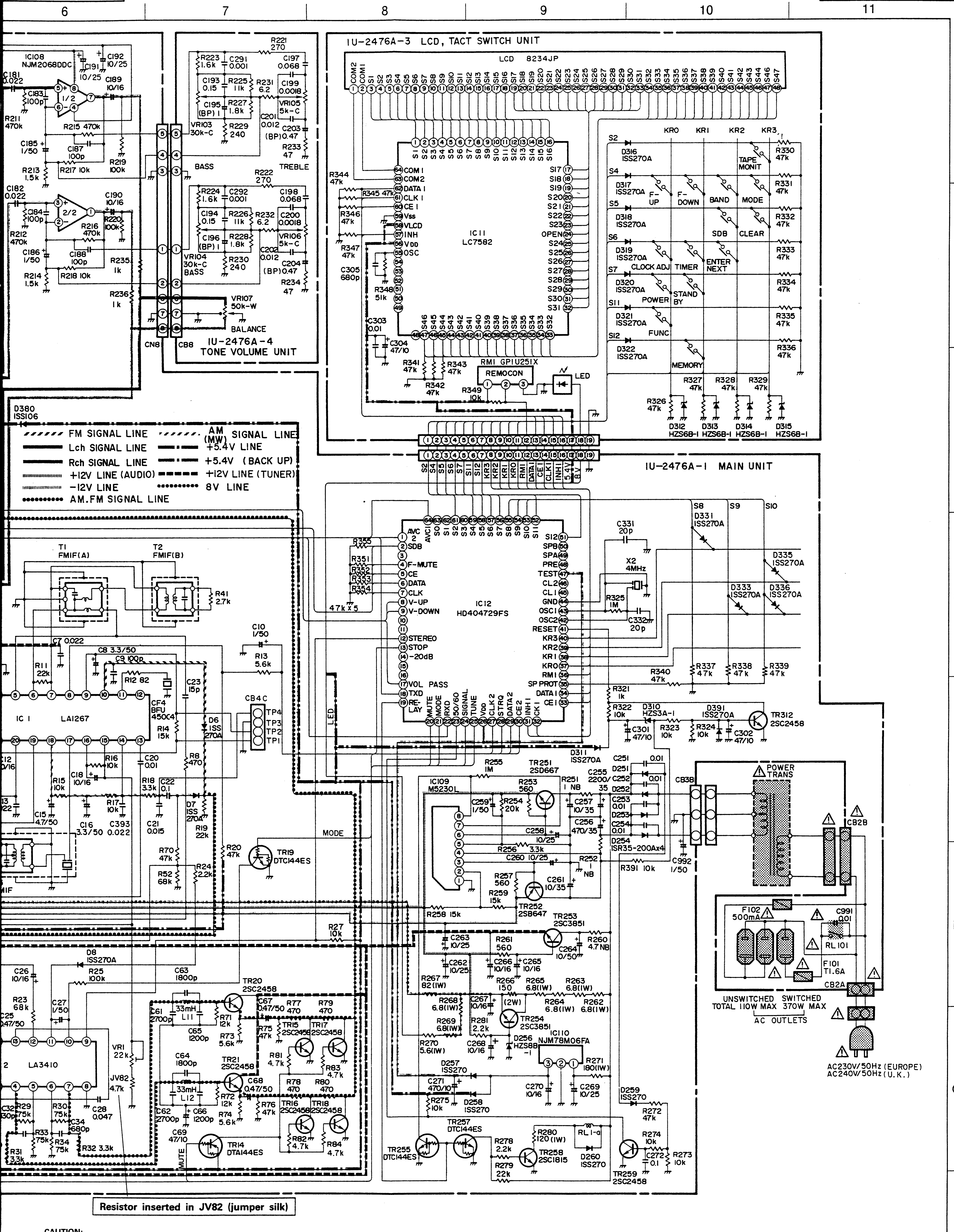
WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTIO
Before r
leakage
defectiv

WARNI
DO NOT

HEMATIC DIAGRAM

TUNER PRE SECTION


6
7
8
9
10
11
A
B
C
D
E
F
G
IU-2476A-3 LCD, TACT SWITCH UNIT
LCD 8234JP
IC11 LC7582
RMI GP1U25IX
REMOCON
LED
IU-2476A-4 TONE VOLUME UNIT
BASS
TREBLE
BALANCE
VR107 50k-W
IC108 NJM2068DDC
CN8
CB8
IU-2476A-1 MAIN UNIT
IC12 HD404729FS
X2 4MHz
FM SIGNAL LINE
AM (MW) SIGNAL LINE
Lch SIGNAL LINE
+5.4V LINE
Rch SIGNAL LINE
+5.4V (BACK UP)
+12V LINE (AUDIO)
+12V LINE (TUNER)
−12V LINE
8V LINE
AM.FM SIGNAL LINE
T1 FMIF(A)
T2 FMIF(B)
IC1 LA1267
CF4 BFU 450C4
CB4C
TP1
TP2
TP3
TP4
IC2 LA3410
JV82
IC109 M5230L
IC110 NJM78M06FA
POWER TRANS
CB3B
CB2B
CB2A
F102 500mA
F101 T1.6A
RL101
UNSWITCHED TOTAL 110W MAX
SWITCHED 370W MAX
AC OUTLETS
AC230V/50Hz (EUROPE)
AC240V/50Hz (U.K.)
MODE
MUTE
Resistor inserted in JV82 (jumper silk)

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is defective.

WARNING
DO NOT return the unit to the customer until the problem is located and corrected.

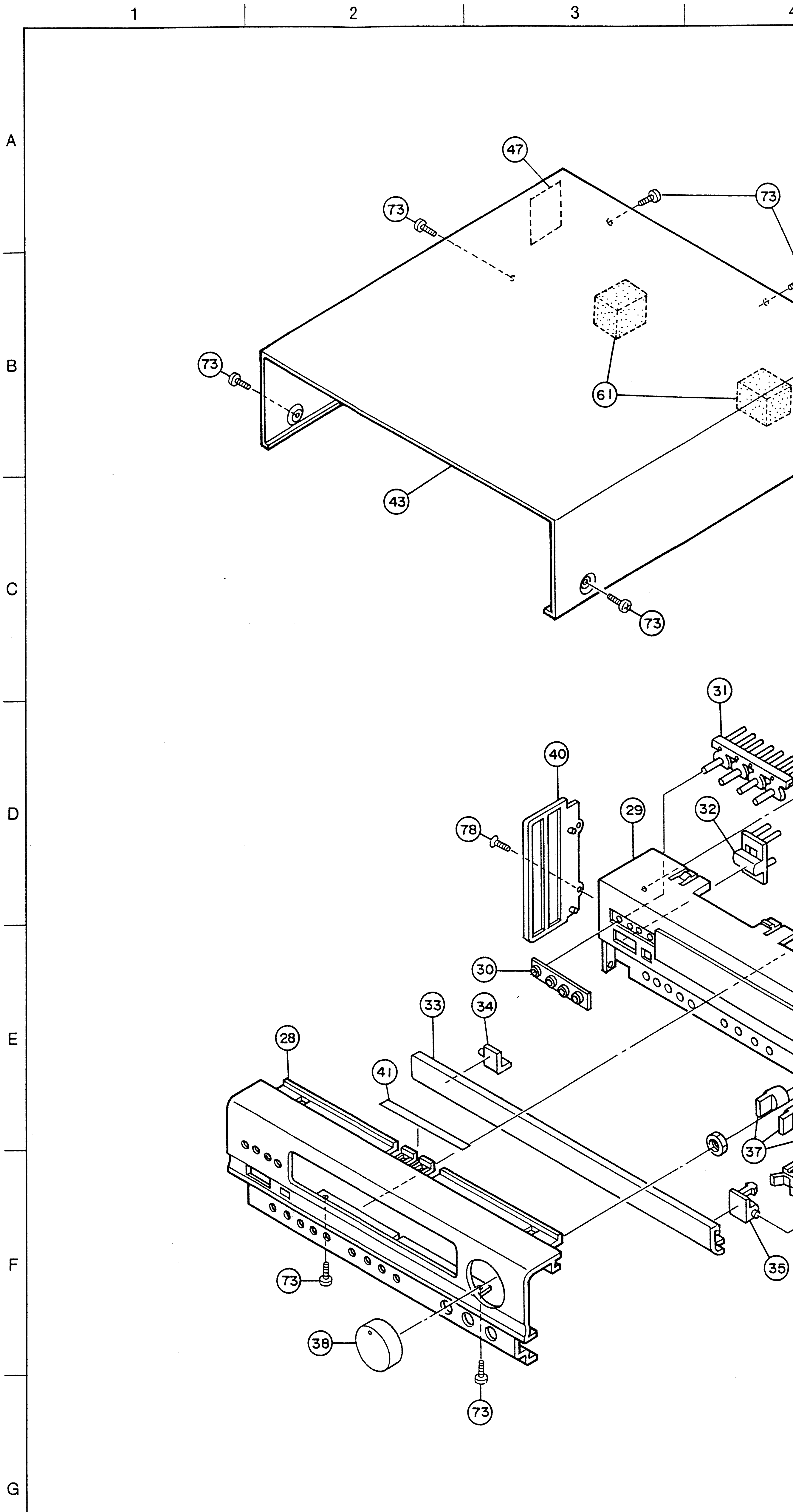
ristics.
urer.

NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

H

EXPLODED VIEW OF PARTS LIST

	Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉	1	1U- 2476 A	P.W.Board Unit Assy		1S
	1-1	—	Main Unit		(1)
	1-2	—	Tuner Unit		(1)
	1-3	—	LCD,Tact Switch Unit		(1)
	1-4	—	Tone Volume Unit		(1)
	1-5	—	Main Volume Unit		(1)
	1-6	—	Trans Wire Unit(P)		(1)
	1-7	—	Trans Wire Unit(S)		(1)
	1-8	—	S.D.B. Unit		(1)
	1-9	—	Phono,EQ Unit		(1)
	2	204 8278 009	6 P Pin Jack(S-GND)		3
	3	211 0749 107	Variable Resistor 100k ohm		1
	4	211 0769 006	Variable Resistor 30k ohm	Bass	1
	5	211 0768 007	Variable Resistor 5k ohm	Treble	1
	6	211 9105 001	Variable Resistor 50k ohm		1
△	7	206 1015 058	Fuse 1.6 A(T)		1
△	8	203 3950 002	3 P AC Outlet		1
	9	—	—		
	10	204 8421 005	Mini Jack	for system	2
	11	204 8422 004	Mini Jack(SW)	for AVC	1
△	12	214 0120 013	Relay(TV-8)		1
	13	254 4258 785	Chemicon 470µF/25 V	C256	1
	14	254 4259 700	Chemicon 2200µF/35 V	C255	1
	15	393 4142 002	LCD (8234JP)		1
	16	449 0057 009	LCD Holder		1
	17	205 0603 002	3 P Ant. Terminal(DIN)		1
	18	216 0079 005	Front End(U)		1
◉	19	411 1184 332	Main Chassis		1
◉	20	412 9339 001	Trans Bracket		1
	21	104 0237 201	Foot Assy		4
	22	105 1042 249	Rear Panel	Europe model	1
	22	105 1042 252	Rear Panel	U.K. model	1
△	23	206 2091 000	AC Cord W/Conn.	Europe model	1
△	23	206 2109 002	AC Cord W/Conn.	U.K. model	1
△	24	445 0056 008	Cord Bush[illegible]	[illegible]	1
	25	205 0752 005	Short Pin		2
	26	412 2814 028	Card Spacer(L=10)		4
	27	—	—		
	28	144 2211 236	Front Panel		1
	29	146 1409 317	Inner Panel Assy		1
	30	146 1420 121	Knob Guide(Round)		1
	31	113 1549 044	Push Knob(Round)		1
	32	113 1460 013	Power Knob		1
	33	144 2216 215	Trap Door		1
	34	401 0175 112	Door Hinge(L)		1
	35	401 0176 111	Door Hinge(R)		1
	36	435 0113 009	Latch(Y3Y18)		1
	37	112 0645 166	Knob		3
	38	112 0691 107	Volume Knob Assy		1
△	39	233 6001 001	Power Trans	Europe model	1
△	39	233 9650 006	Power Trans	U.K. model	1
	40	146 1411 211	Side Plate		2
	41	122 0183 007	Spacer	100×10×T5	1
★	42	445 8004 007	Wire Clamper		3
	43	102 0519 211	Top Cover		1
	44	414 0676 015	Shield Plate		1
	45	009 0077 001	19 P F.F.Cable		1
◉	46	412 3485 016	P.W.Bracket		2
	47	513 9316 013	Rating Sheet	Europe model	1
	47	513 9316 039	Rating Sheet	U.K. model	1
	48	415 9066 001	Insulating Sheet		1
	49	477 0018 001	Washer(P-87)		1
	50	205 0071 016	Terminal Assy		1
	51	461 0756 012	Rubber Sheet	10×10×T15	1
	52	414 9132 000	Shield Plate		1
	53	461 0496 026	Spacer	10×35×T3	1
	54	461 0756 041	Rubber Sheet	10×10×T7	1
	55	461 0756 025	Rubber Sheet	10×10×T10	1
	56	513 2058 006	Blind Sheet		4
	57	461 9039 002	Spacer		1
◉	58	412 9340 003	Fix. Plate		1
	59	414 9133 009	Earth Plate		1
	60	461 0758 010	Rubber Sheet		1
	61	461 0756 009	Rubber Sheet	25×25×T20	2
★	62	513 9328 001	Homologation Label		1
△	63	206 1015 003	Fuse 500 mA		1
	64	513 0815 089	Fuse Label(T-1.6 A)		1
	65	513 0815 005	Fuse Label(0.5 A)		1
	66	—	—		
	67	—	—		
	68	—	—		
		—	—	20×20×T5	2
	SCREWS				
	71	473 7004 016	Tapping Screw(S)4×6		4
	72	473 7002 018	Tapping Screw(S)3×8		10
	73	473 7015 005	Tapping Screw(S)3×6	Black	13
	74	473 7505 007	Tapping Screw(P)2.6×8		12
	75	477 0064 107	Fixing Screw		8
	76	477 0276 018	Earth Screw		1
	77	473 7004 003	Tapping Screw(S)4×8		4
	78	473 7500 028	F.Tapping Screw(P)3×8		2
	79	473 7002 005	Tapping Screw(S)3×6		1
	80				
	PACKING & ACCESSORIES (Not included EXPLODED VIEW)				
	101	505 0178 000	:Poly Cover		1
	102	503 1062 106	:Cushion		1
	103	503 1061 000	:Top Cushion	Europe model	1
	103	503 9040 001	:Top Cushion	U.K. model	1
	104	501 1657 010	:Carton Case	Europe model	1
	104	501 1657 023	:Carton Case	U.K. model	1
	105	505 0241 005	Cabinet Cover		1
	106	511 2421 006	:Inst. Manual		1
	107	511 2433 007	:Inst. Manual		1
	108	505 9124 000	:Poly Cover	U.K. model only	1



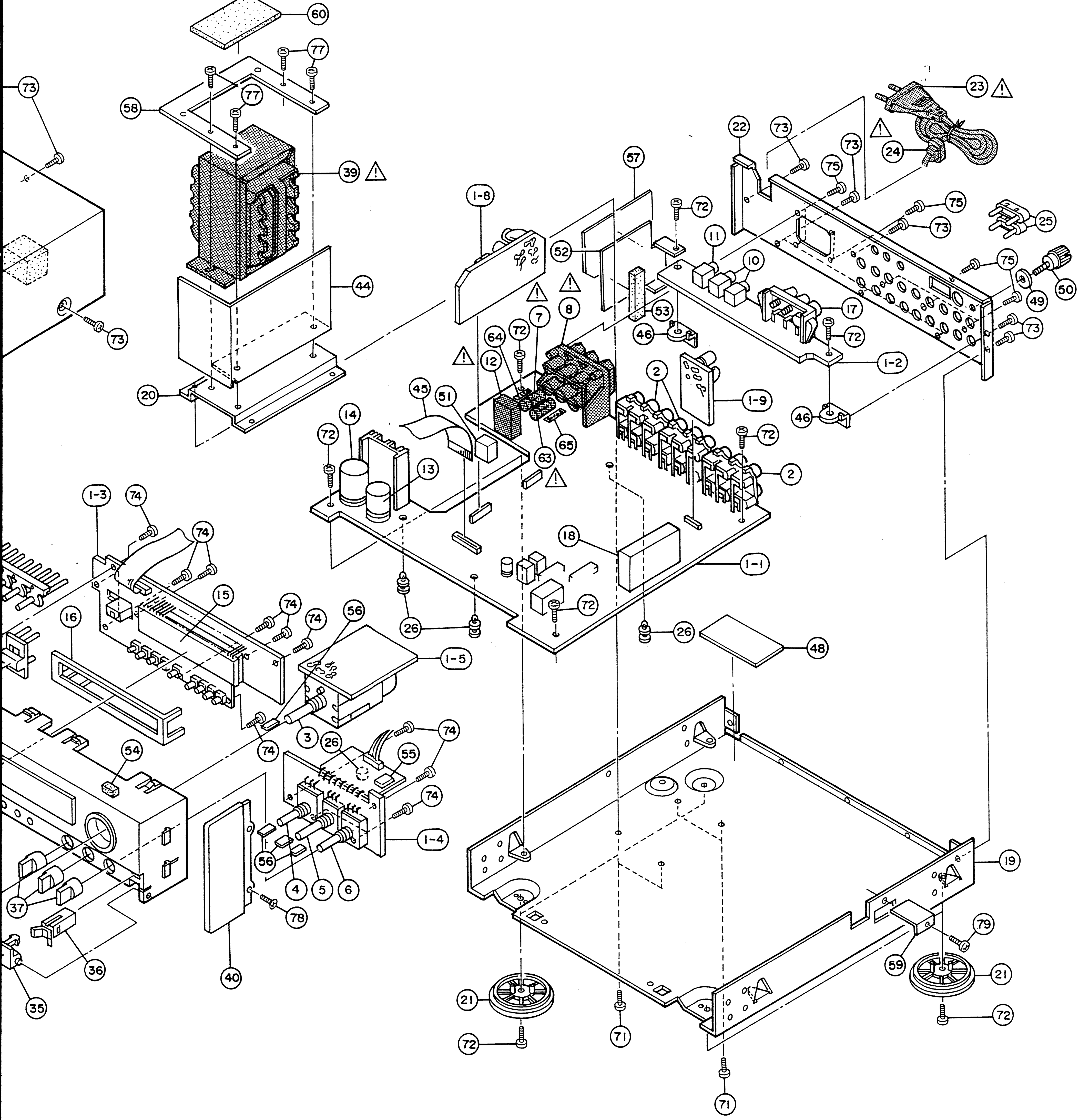
NOTE ON PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in
  supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:
Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

EXPLODED VIEW

4 5 6 7 8 9

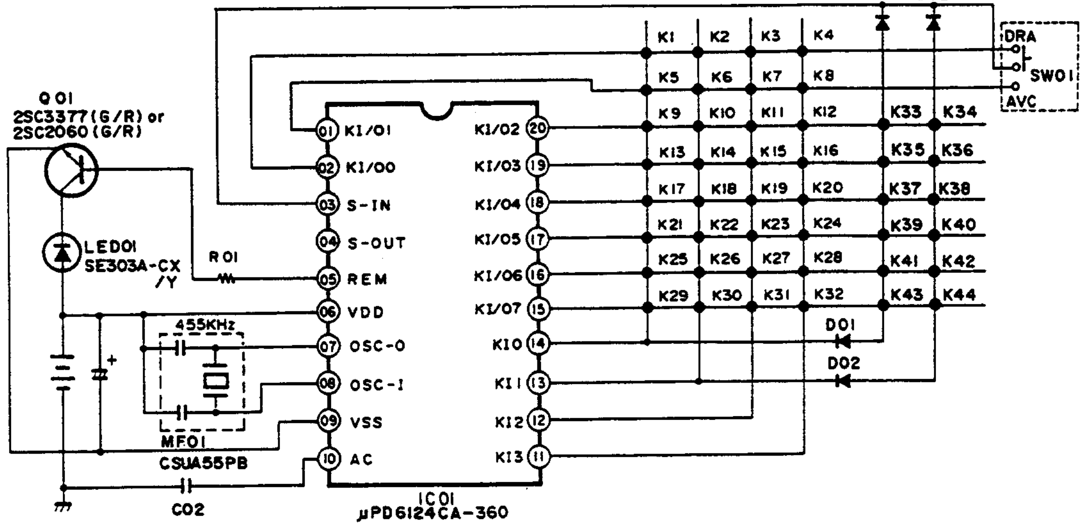

60
77
77
73
58
39
23
22
73
73
75
24
57
72
75
73
25
1-8
11
10
52
75
50
49
44
73
8
7
72
64
53
46
17
72
73
12
1-2
45
51
2
1-9
20
14
72
46
63
65
72
13
2
1-3
74
74
18
1-1
15
74
74
56
72
16
26
26
26
48
1-5
3
74
74
26
55
54
74
1-4
19
56
4
5
6
37
78
79
59
36
21
21
40
35
72
71
72
71

g, or in some case

REMOTE CONTROL UNIT

(RC-154: Part No.: 3990168004)

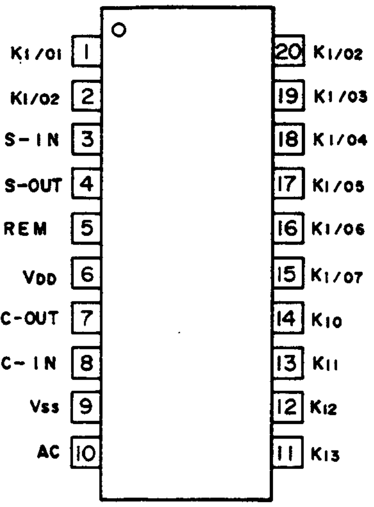
Schematic Diagram


DAP209S
D01 D02
K1 K2 K3 K4
K5 K6 K7 K8
K9 K10 K11 K12 K33 K34
K13 K14 K15 K16 K35 K36
K17 K18 K19 K20 K37 K38
K21 K22 K23 K24 K39 K40
K25 K26 K27 K28 K41 K42
K29 K30 K31 K32 K43 K44
DRA
SW01
AVC
Q01
2SC3377(G/R) or
2SC2060(G/R)
LED01
SE303A-CX
/Y
R01
455KHz
MF01
CSUA55PB
C02
01 KI/01
02 KI/00
03 S-IN
04 S-OUT
05 REM
06 VDD
07 OSC-O
08 OSC-I
09 VSS
10 AC
KI/02 20
KI/03 19
KI/04 18
KI/05 17
KI/06 16
KI/07 15
KI0 14
KI1 13
KI2 12
KI3 11
D01
D02
IC01
μPD6124CA-360

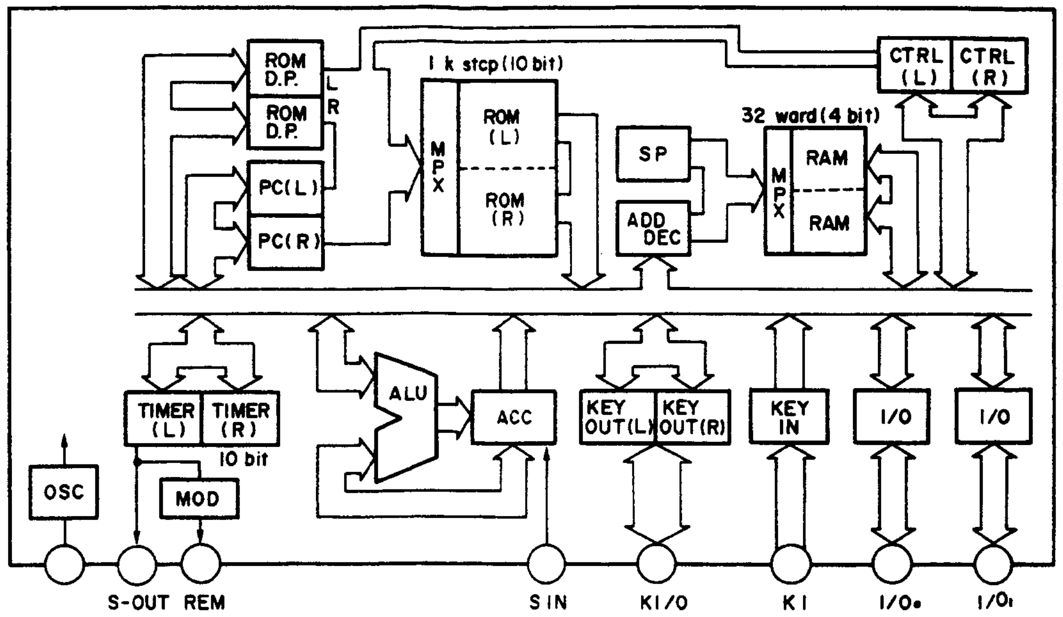
NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

IC

μPD6124CA-360
Pin Connection (Top View)

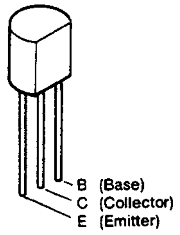

KI/01 1
KI/02 2
S-IN 3
S-OUT 4
REM 5
VDD 6
OSC-OUT 7
OSC-IN 8
VSS 9
AC 10
20 KI/02
19 KI/03
18 KI/04
17 KI/05
16 KI/06
15 KI/07
14 K10
13 K11
12 K12
11 K13

Block Diagram


ROM D.P.
ROM D.P.
L
R
PC(L)
PC(R)
1 k step (10 bit)
MPX
ROM (L)
ROM (R)
SP
ADD DEC
32 word (4 bit)
MPX
RAM
RAM
CTRL (L)
CTRL (R)
TIMER (L)
TIMER (R)
10 bit
ALU
ACC
KEY OUT(L)
KEY OUT(R)
KEY IN
I/O
I/O
OSC
MOD
S-OUT
REM
S IN
KI/O
KI
I/O0
I/O1

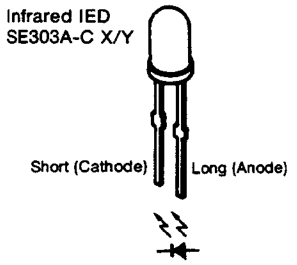
Transistor

2SC2060 (G/R)
2SC3377 (G/R)

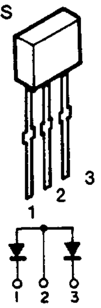

B (Base)
C (Collector)
E (Emitter)

Diodes

Infrared IED
SE303A-C X/Y


Short (Cathode)
Long (Anode)

DAP209S



Cord Tabe (SW DRA Mode Side)

Key	System Address					Data Code						Expansion		Mask	Ruling	Remarks	RC-154
No.	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	K		
1	0	0	1	1	0	0	0	0	0	1	0	1	0	0	0	POWER	○
2	0	0	1	1	0	1	0	1	1	0	0	1	0	0	0	VOLUME UP	○
3	0	0	1	1	0	0	0	1	1	0	0	1	0	0	0	VOLUME DOWN	○
4	0	0	1	1	0	0	1	0	0	1	1	1	0	0	0	SLEEP	○
5	0	0	1	1	0	1	1	0	1	0	0	1	0	0	0	MUTING	
6	0	0	1	1	0	1	1	1	1	1	0	1	0	0	0	FUNCTION	○
7	0	0	1	1	0	0	0	1	1	1	0	1	0	0	0	T-MONITOR	○
8	0	0	1	1	0	1	0	0	1	1	0	1	0	0	0	TUNER	○
9	0	0	1	0	0	0	0	1	1	1	0	1	0	0	0	F.PLAY 1 ▶	○
10	0	0	1	0	0	1	1	1	0	1	0	1	0	0	0	R.PLAY 1 ◀	○
11	0	0	1	0	0	0	1	0	1	1	0	1	0	0	0	FF 1 ▶▶	○
12	0	0	1	0	0	1	1	0	1	1	0	1	0	0	0	REW 1	○
13	0	0	1	0	0	1	1	1	1	1	0	1	0	0	0	REC/MUTE 1 ●	○
14	0	0	1	0	0	0	1	1	1	1	0	1	0	0	0	STOP 1 ■	○
15	0	0	1	0	0	1	1	0	0	1	0	1	0	0	0	SELECT A/B	○
16																No signals sent	
17 ∫ 27	Keys for which the codes change See the Code Tables for the tuner and CD modes.																
28																	
29 30 31 32																No signals sent	
33	0	0	0	1	0	1	1	1	0	1	0	1	0	0	0	DIRECT	○
34	0	0	0	1	0	1	0	1	1	0	0	1	0	0	0	PROGRAM	○
35	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	CANCEL	○
36	0	0	0	1	0	0	1	0	1	0	1	1	1	0	0	SDB	○
37	0	0	0	1	0	0	0	1	1	1	0	1	0	0	0	PLAY ▶	○
38	0	0	0	1	0	0	1	1	1	1	0	1	0	0	0	STOP ■	○
39	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	A-SEARCH ⏭	○
40	0	0	0	1	0	1	0	0	1	1	0	1	0	0	0	A-SEARCH ⏮	○
41	0	0	0	1	0	0	1	0	1	1	0	1	0	0	0	M-SEARCH ▶▶	○
42	0	0	0	1	0	1	1	0	1	1	0	1	0	0	0	M-SEARCH ◀◀	○
43	0	0	0	1	0	1	0	1	1	1	0	1	0	0	0	PAUSE ⏸	○
44	0	0	0	1	0	1	1	0	1	0	1	1	0	0	0	DISK SKIP	○

Cord Tabe (SW DRA Mode Side)
Tuner mode [after TUNER (K8) Key pressed (and in the initial state with the SW DRA mode values after the batteries have been inserted)]

Key	System Address					Data Code						Expansion		Mask	Ruling	Remarks	RC-154
No.	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	K		
17	0	0	1	1	0	0	1	0	0	0	0	1	0	0	0	1	○
18	0	0	1	1	0	1	1	0	0	0	0	1	0	0	0	2	○
19	0	0	1	1	0	0	0	1	0	0	0	1	0	0	0	3	○
20	0	0	1	1	0	1	0	1	0	0	0	1	0	0	0	4	○
21	0	0	1	1	0	0	1	1	0	0	0	1	0	0	0	5	○
22	0	0	1	1	0	1	1	1	0	0	0	1	0	0	0	6	○
23	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	7	○
24	0	0	1	1	0	1	0	0	1	0	0	1	0	0	0	8	○
25	0	0	1	1	0	1	1	0	0	0	1	1	0	0	0	9	○
26	0	0	1	1	0	0	0	1	0	0	1	1	0	0	0	10	○
27	0	0	1	1	0	1	1	1	1	0	1	1	0	0	0	+10	○

Cord Tabe (SW DRA Mode Side)
CD mode [after DIRECT (K33) or PROGRAM (K34) Key presssed]

Key	System Address					Data Code						Expansion		Mask	Ruling	Remarks	RC-154
No.	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	K		
17	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	1	○
18	0	0	0	1	0	1	1	0	0	0	0	1	0	0	0	2	○
19	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	3	○
20	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	4	○
21	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	5	○
22	0	0	0	1	0	1	1	1	0	0	0	1	0	0	0	6	○
23	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	7	○
24	0	0	0	1	0	1	0	0	1	0	0	1	0	0	0	8	○
25	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	9	○
26	0	0	0	1	0	1	1	0	1	0	0	1	0	0	0	10	○
27	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	+10	○

Cord Tabe (SW AVC Mode Side)

Key	System Address					Data Code						Expansion		Mask	Ruling	Remarks	RC-154
No.	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	K		
1	0	1	0	0	0	1	0	0	0	0	0	1	1	0	0	POWER	○
2	0	1	0	0	0	1	0	0	0	1	1	1	1	0	0	VOLUME UP	○
3	0	1	0	0	0	0	1	0	0	1	1	1	1	0	0	VOLUME DOWN	○
4	0	0	1	1	0	0	1	0	0	1	1	1	0	0	0	SLEEP	○
5	0	1	0	0	0	0	0	0	0	1	1	1	1	0	0	MUTING	
6	0	0	1	1	0	1	1	1	1	1	0	1	0	0	0	FUNCTION	○
7	0	0	1	1	0	0	0	1	1	1	0	1	0	0	0	T-MONITOR	○
8	0	0	1	1	0	1	0	0	1	1	0	1	0	0	0	TUNER	○
9	0	0	1	0	0	0	0	1	1	1	0	1	0	0	0	F.PLAY 1 ▶	○
10	0	0	1	0	0	1	1	1	0	1	0	1	0	0	0	R.PLAY 1 ◀	○
11	0	0	1	0	0	0	1	0	1	1	0	1	0	0	0	FF 1 ▶▶	○
12	0	0	1	0	0	1	1	0	1	1	0	1	0	0	0	REW 1 ◀◀	○
13	0	0	1	0	0	1	1	1	1	1	0	1	0	0	0	REC/MUTE 1 ●	○
14	0	0	1	0	0	0	1	1	1	1	0	1	0	0	0	STOP 1 ■	○
15	0	0	1	0	0	1	1	0	0	1	0	1	0	0	0	SELECT A/B	○
16																No signals sent	
17	0	1	0	0	0	0	1	0	1	0	0	1	1	0	0	VDP-1	○
18	0	1	0	0	0	1	1	0	1	0	0	1	1	0	0	VDP-2	○
19	0	1	0	0	0	1	0	1	1	0	0	1	1	0	0	VCR-1	○
20	0	1	0	0	0	0	1	1	1	0	0	1	1	0	0	VCR-2	○
21	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	DBS	○
22	0	1	0	0	0	1	0	0	1	0	0	1	1	0	0	TV	○
23	0	1	0	0	0	1	1	1	0	0	1	1	1	0	0	BYPASS	○
24	0	1	0	0	0	0	1	1	0	0	1	1	1	0	0	SURROUND MODE	○
25	0	1	0	0	0	0	0	1	0	0	1	1	1	0	0	D CENTER	○
26	0	1	0	0	0	0	1	0	1	0	1	1	1	0	0	T. TONE	○
27	0	1	0	0	0	1	1	0	1	0	1	1	1	0	0	3CH LOGIC	○
28	0	1	0	0	0	1	1	0	0	1	1	1	1	0	0	REAR VOL. UP	○
29	0	1	0	0	0	0	0	1	0	1	1	1	1	0	0	REAR VOL. DOWN	○
30	0	1	0	0	0	1	0	1	0	1	1	1	1	0	0	CENTER VOL. UP	○
31	0	1	0	0	0	0	1	1	0	1	1	1	1	0	0	CENTER VOL. DOWN	○
32																No signals sent	
33	0	0	0	1	0	1	1	1	0	1	0	1	0	0	0	DIRECT	○
34	0	0	0	1	0	1	0	1	1	0	0	1	0	0	0	PROGRAM	○
35	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	CANSEL	○
36	0	0	0	1	0	0	1	0	1	0	1	1	1	0	0	SDB	○
37	0	0	0	1	0	0	0	1	1	1	0	1	0	0	0	PLAY ▶	○
38	0	0	0	1	0	0	1	1	1	1	0	1	0	0	0	STOP ■	○
39	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	A-SEARCH ⏭	○
40	0	0	0	1	0	1	0	0	1	1	0	1	0	0	0	A-SEARCH ⏮	○
41	0	0	0	1	0	0	1	0	1	1	0	1	0	0	0	M-SEARCH ▶▶	○
42	0	0	0	1	0	1	1	0	1	1	0	1	0	0	0	M-SEARCH ◀◀	○
43	0	0	0	1	0	1	0	1	1	1	0	1	0	0	0	PAUSE ⏸	○
44	0	0	0	1	0	1	1	0	1	0	1	1	0	0	0	DISK SKIP	

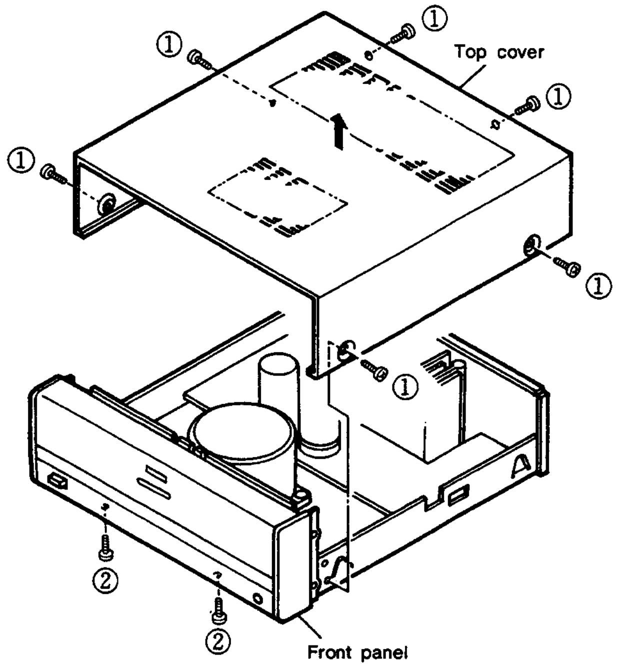
POWER AMPLIFIER SECTION

DISASSEMBLY PROCEDURES

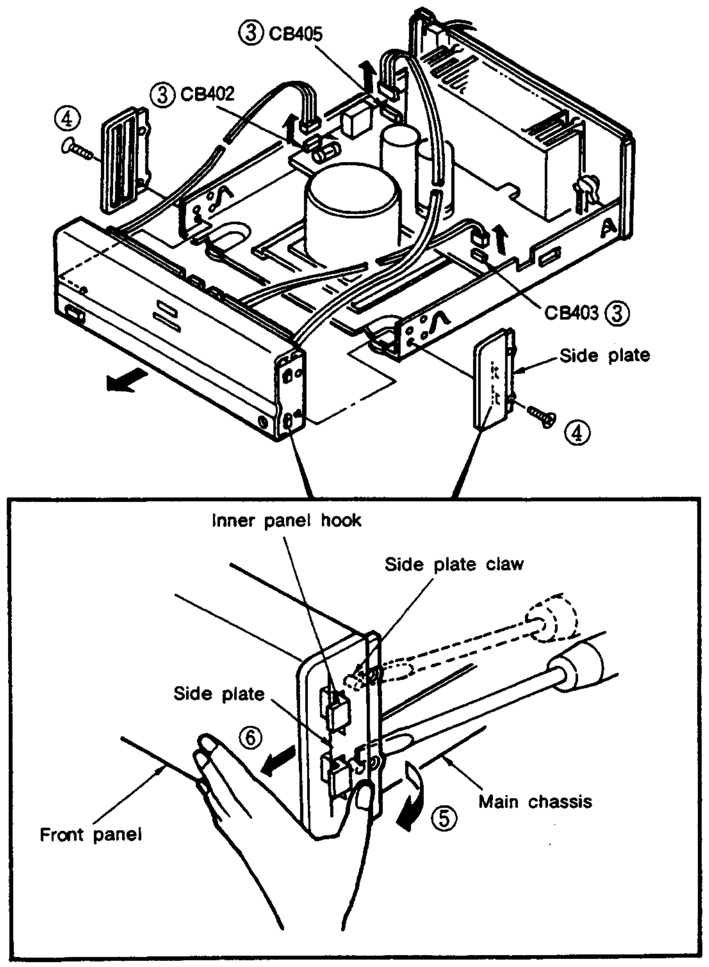
(Follow these procedures in reverse order to reassemble.)

1. Removing the cover and front panel

① Remove the 6 screws which fasten the top cover.
② Remove the 2 screws of the bottom side which fasten the front panel.


①
①
Top cover
①
①
①
①
②
②
Front panel

③ Disconnect connectors CB402, CB403, and CB405 which are attached to the main unit.
④ Remove the 2 screws which fasten the side plate.
⑤ While disengaging in the direction of the arrow the tabs of the side plate and the holes of the main chassis (with a flat-bladed screwdriver),
⑥ Use your fingers to push out the hook of the inner panel from the side plate in the direction of the arrow.
Using the same method for the left side, remove the side plate.
Remove the front panel in the direction of the arrow.


③ CB405
③ CB402
④
CB403 ③
Side plate
④
Inner panel hook
Side plate claw
Side plate
⑥
Main chassis
⑤
Front panel

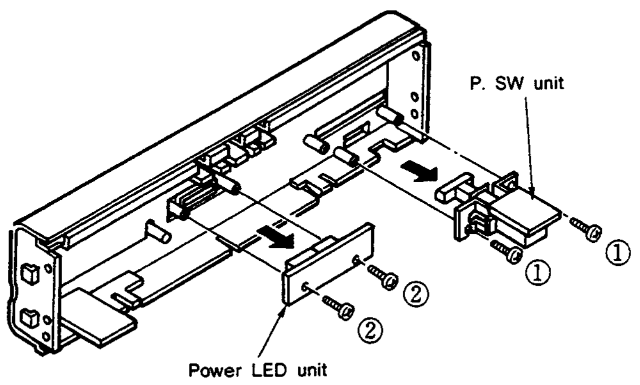
2. Removal of the Various Boards

POWER SWITCH UNIT 1U-2477-2

① Remove the 2 screws which fasten the power switch unit and remove the board in the direction of the arrow.

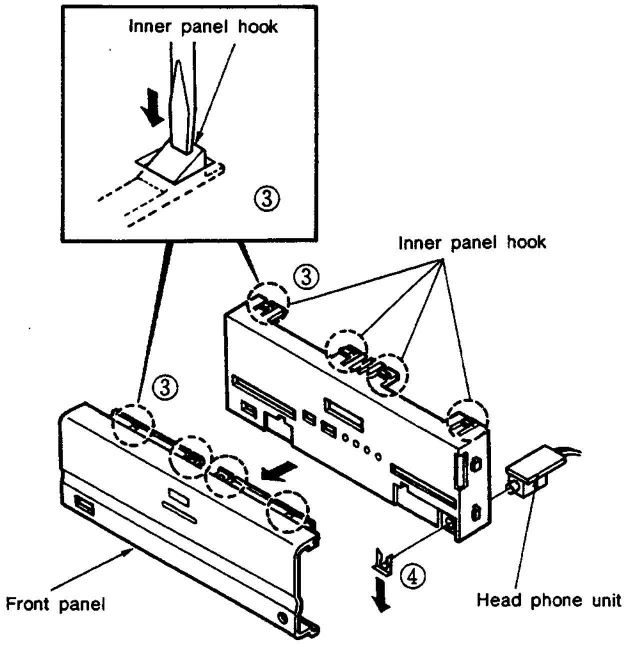
POWER LED UNIT 1U-2477-3

② Remove the 2 screws which fasten the power LED unit and remove the board in the direction of the arrow.


P. SW unit
①
①
②
②
Power LED unit

HEADPHONE UNIT 1U-2477-4

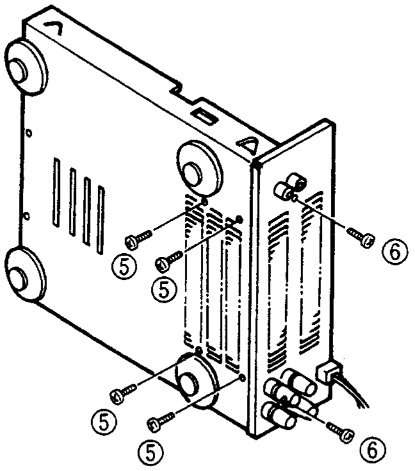
③ While pressing (with a flat-bladed screwdriver) the 4 hooks of the inner panel which fasten the front panel, remove the front panel in the direction of the arrow.
④ Remove the spacer which fastens the headphone unit in the direction of the arrow.


Inner panel hook
③
Inner panel hook
③
③
Front panel
④
Head phone unit

MAIN UNIT IU-2477-1

⑤ Stand the main unit in the horizontal orientation and remove the 4 screws which fasten the power radiator.

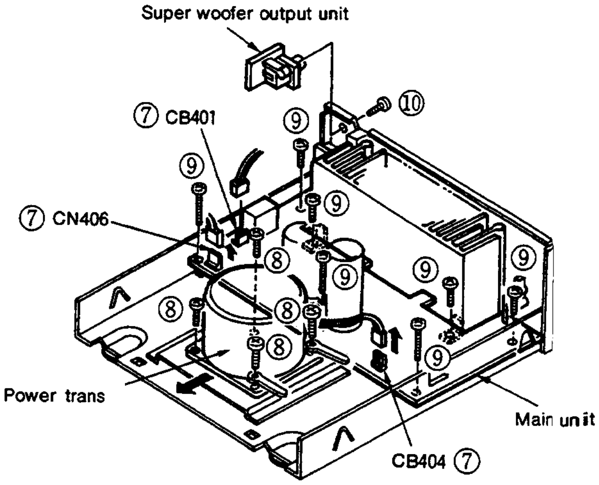
⑥ Remove the 2 screws which fasten the main unit.



⑦ Disconnect connectors CB401 and CB404, CN406 which are attached to the main unit.

⑧ Remove the 4 screws which fasten the power transformer and move the power transformer in the direction of the arrow.

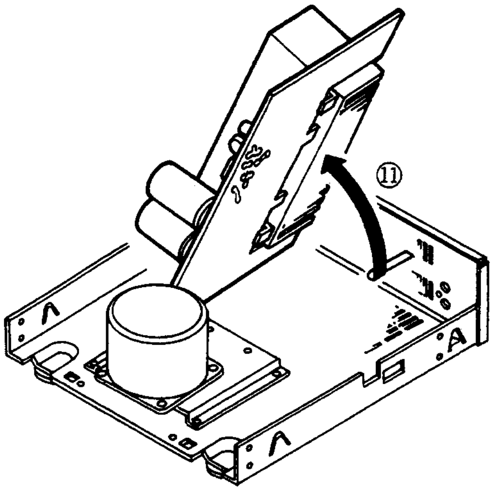
⑨ Remove the 7 screws which fasten the main unit.


Super woofer output unit
⑦ CB401
⑩
⑨
⑦ CN406
⑧
⑧
⑧
⑧
⑨
Power trans
Main unit
CB404 ⑦

S. WOOFER OUT PUT UNIT IU-2477-6

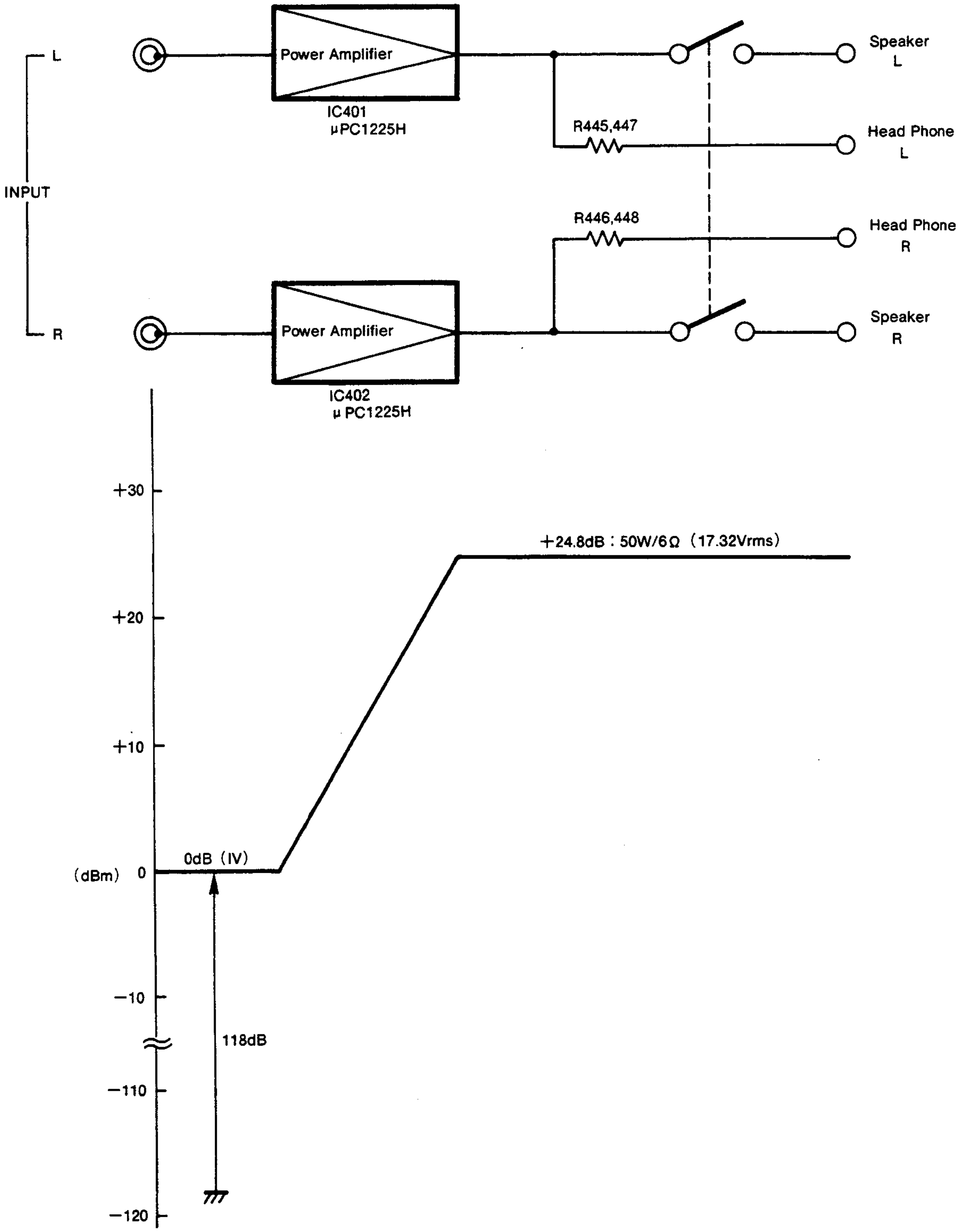
⑩ Remove the screw which fastens the superwoofer output unit.

⑪ Remove the main unit in the direction of the arrow.

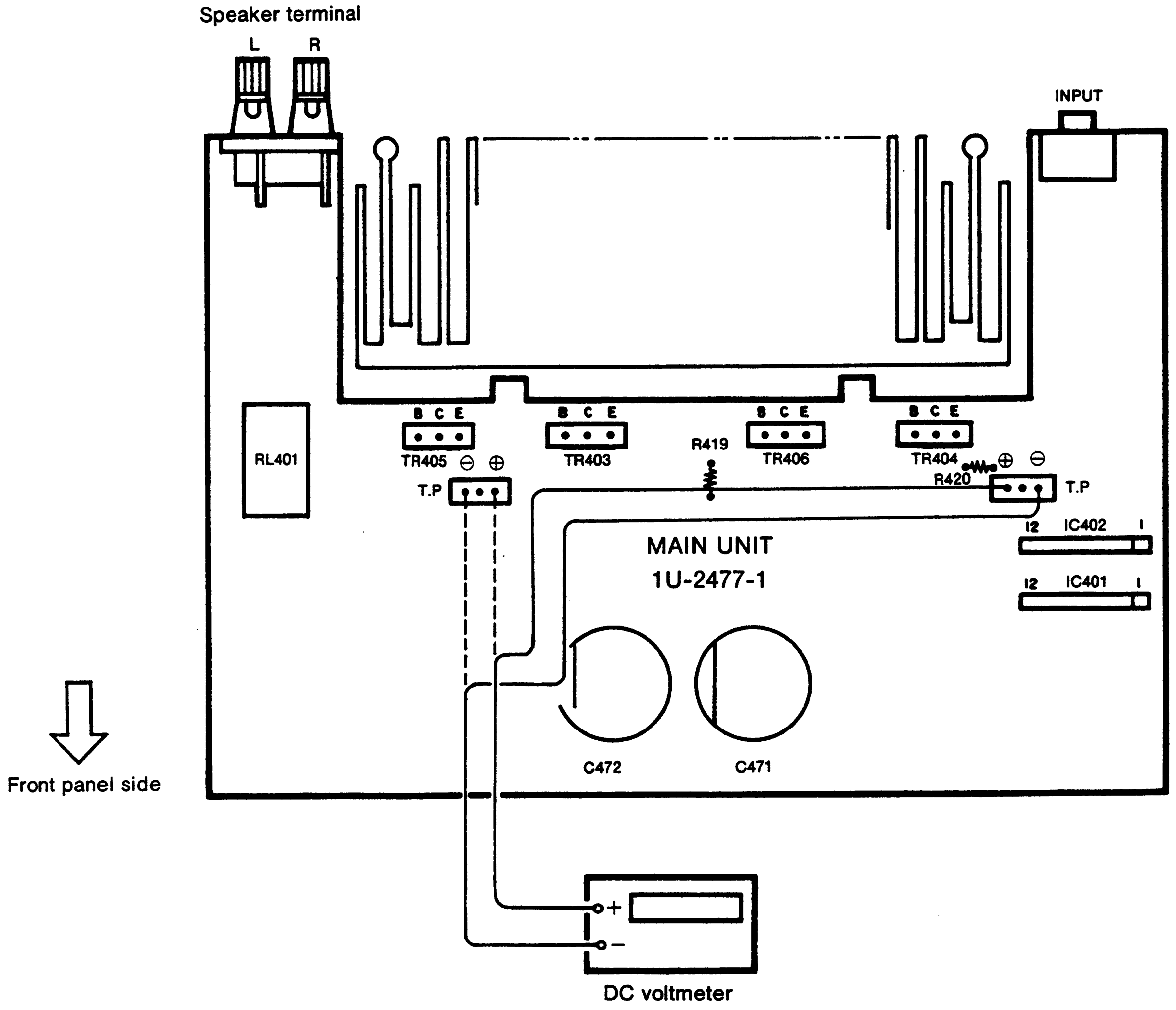


POWER AMPLIFIER SECTION

BLOCK, LEVEL DIAGRAM


INPUT
L
R
Power Amplifier
IC401
μPC1225H
Power Amplifier
IC402
μPC1225H
R445,447
R446,448
Speaker
L
Head Phone
L
Head Phone
R
Speaker
R
+30
+20
+10
(dBm) 0
−10
−110
−120
+24.8dB : 50W/6Ω (17.32Vrms)
0dB (IV)
118dB

ADJUSTMENT


Speaker terminal
L
R
INPUT
RL401
B C E
TR405
⊖ ⊕
T.P
TR403
R419
TR406
TR404
R420
⊕ ⊖
T.P
12 IC402 1
12 IC401 1
MAIN UNIT
1U-2477-1
C472
C471
Front panel side
+
−
DC voltmeter

1. Measuring Instruments Required for the Adjustments

- DC voltmeter

2. Preparation

(1) Avoid placing the set near an air conditioner or fan where there is a lot of air circulation and place it in the normal operating condition. The operating temperature of the set should be between 15 and 30℃, and the humidity should be normal.

(2) Set the switches of the set as follows:

- POWER switch: ON (▬)
- SPEAKER terminals: No load (i.e., do not connect a speaker or dummy resistor)
- INPUT pin: No input

● Adjustments

(1) Remove the top cover and connect a DC voltmeter to the test point of 1U-2477-1 (the main board).

(2) Plug the power cord into a 230 V AC source (or one in the range of 219 to 241 V) and set the power switch on (▬).

(3) Read the voltmeter after 10 minutes and check that the reading is in the range of 2 mV to 40 mV (DC).

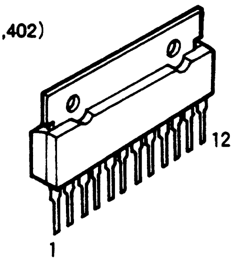
(4) When the value of the voltmeter reading is 1 mV or less, cut the aforementioned R419 and R420 (510 ohm).

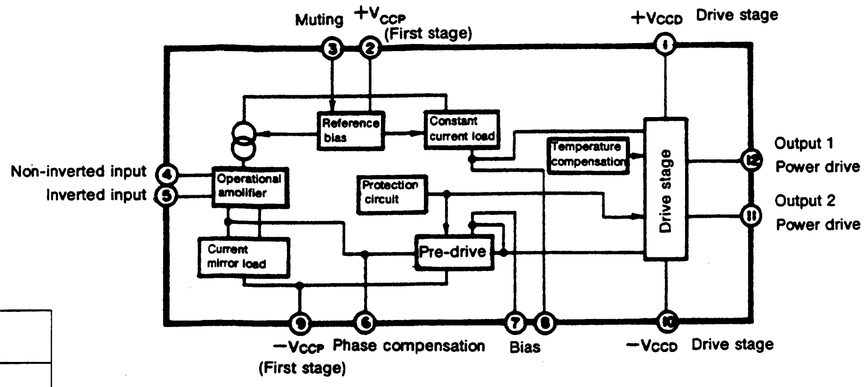
POWER AMPLIFIER SECTION

SEMICONDUCTORS

● IC's

μPC1225H
(IC401,402)



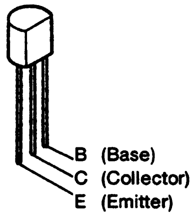

Muting
+Vccp
(First stage)
+Vccd Drive stage
Reference bias
Constant current load
Temperature compensation
Drive stage
Non-inverted input
Inverted input
Operational amplifier
Protection circuit
Current mirror load
Pre-drive
Output 1
Power drive
Output 2
Power drive
−Vccp
(First stage)
Phase compensation
Bias
−Vccd Drive stage
1
2
3
4
5
6
7
8
9
10
11
12

Terminal Connection

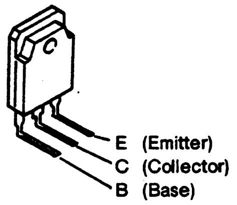
Terminal No.	Connection
1	+ Vccd (Drive stage power supply)
2	+ Vccp (Pre-drive stage power supply)
3	Muting
4	Input (Non inverted)
5	NFB (Inverted)
6	Phase Comparator
7	Bias
8	Bias
9	− Vccp (Pre-drive stage power supply)
10	− Vccd (Drive stage power supply)
11	Lower Output
12	Upper Output

● Transistors

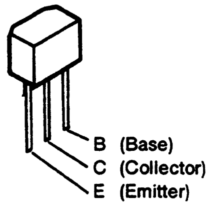
2SA970 (BL/GR)
2SC1815 (BL)
2SC1841 (E/F)
2SA1015 (GR)
2SC2878 (A/B)
2SC2240 (BL/GR)


B (Base)
C (Collector)
E (Emitter)

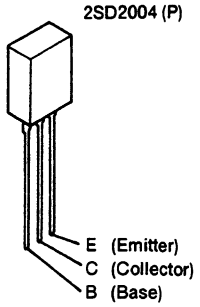
2SA1491LB (O/P/Y) (Z)
2SC3855LB (O/P/Y) (Z)


E (Emitter)
C (Collector)
B (Base)

2SC2458 (BL)
2SA1048 (GR)

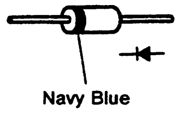

B (Base)
C (Collector)
E (Emitter)

2SB1328 (P)
2SD2004 (P)

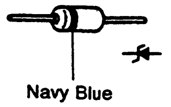

E (Emitter)
C (Collector)
B (Base)

● Diodes (including LED)

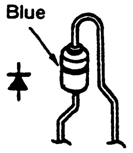
1SS270A



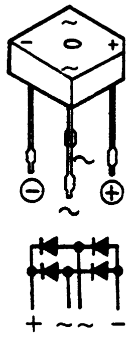
HZS7B-1 HZS12B-1
HZS16-1 HZS30-1



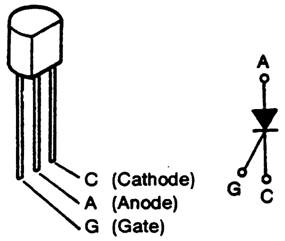
1SR35-200A



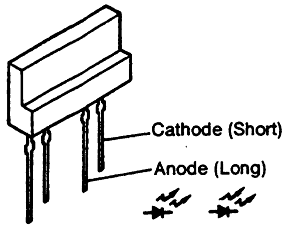
S4VB20F



Thyrister
SFOR1A42


C (Cathode)
A (Anode)
G (Gate)
A
G
C

LED
SLP-171E

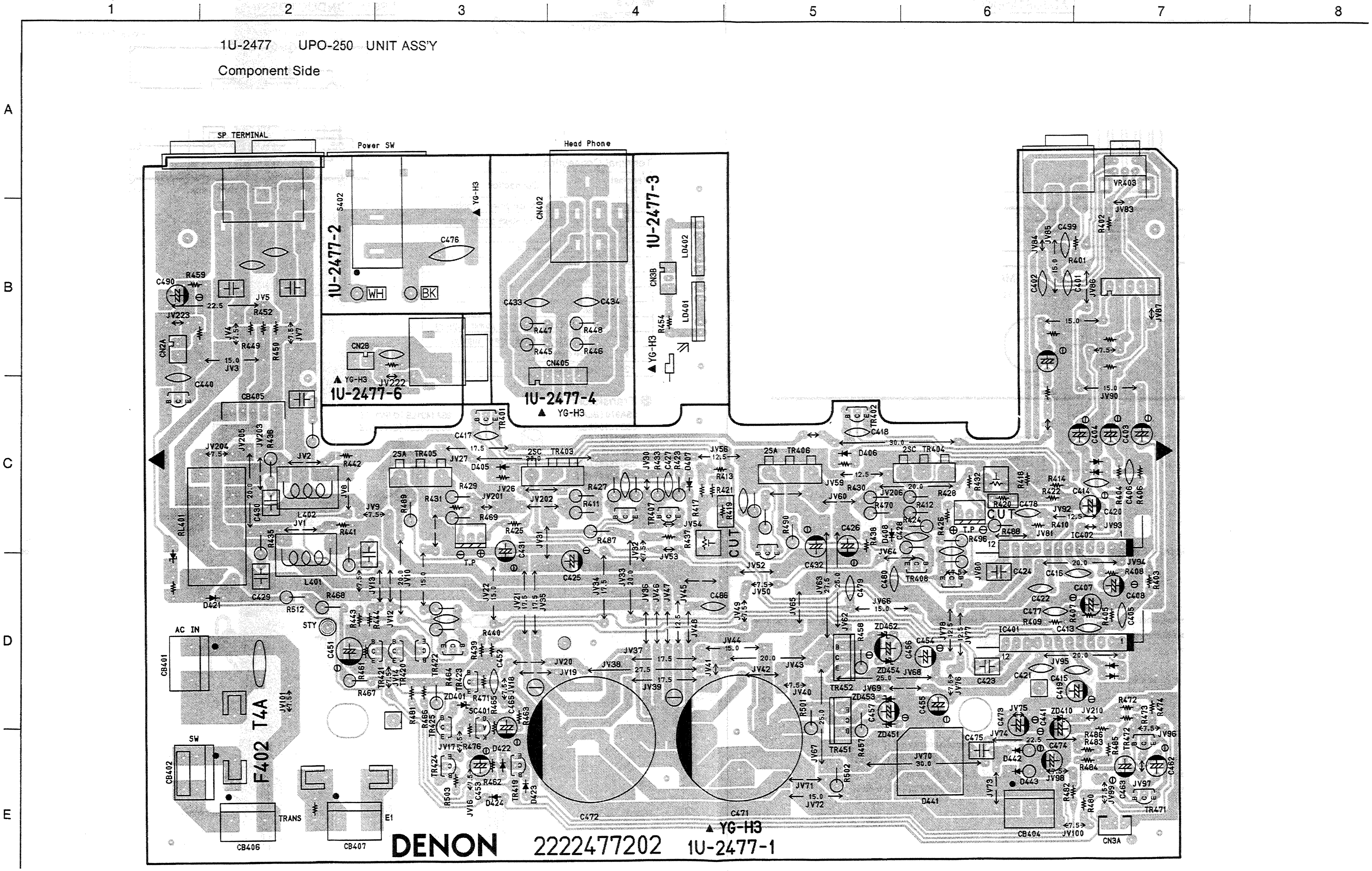

Cathode (Short)
Anode (Long)

POWER AMPLIFIER SECTION

PRINTED WIRING BOARD

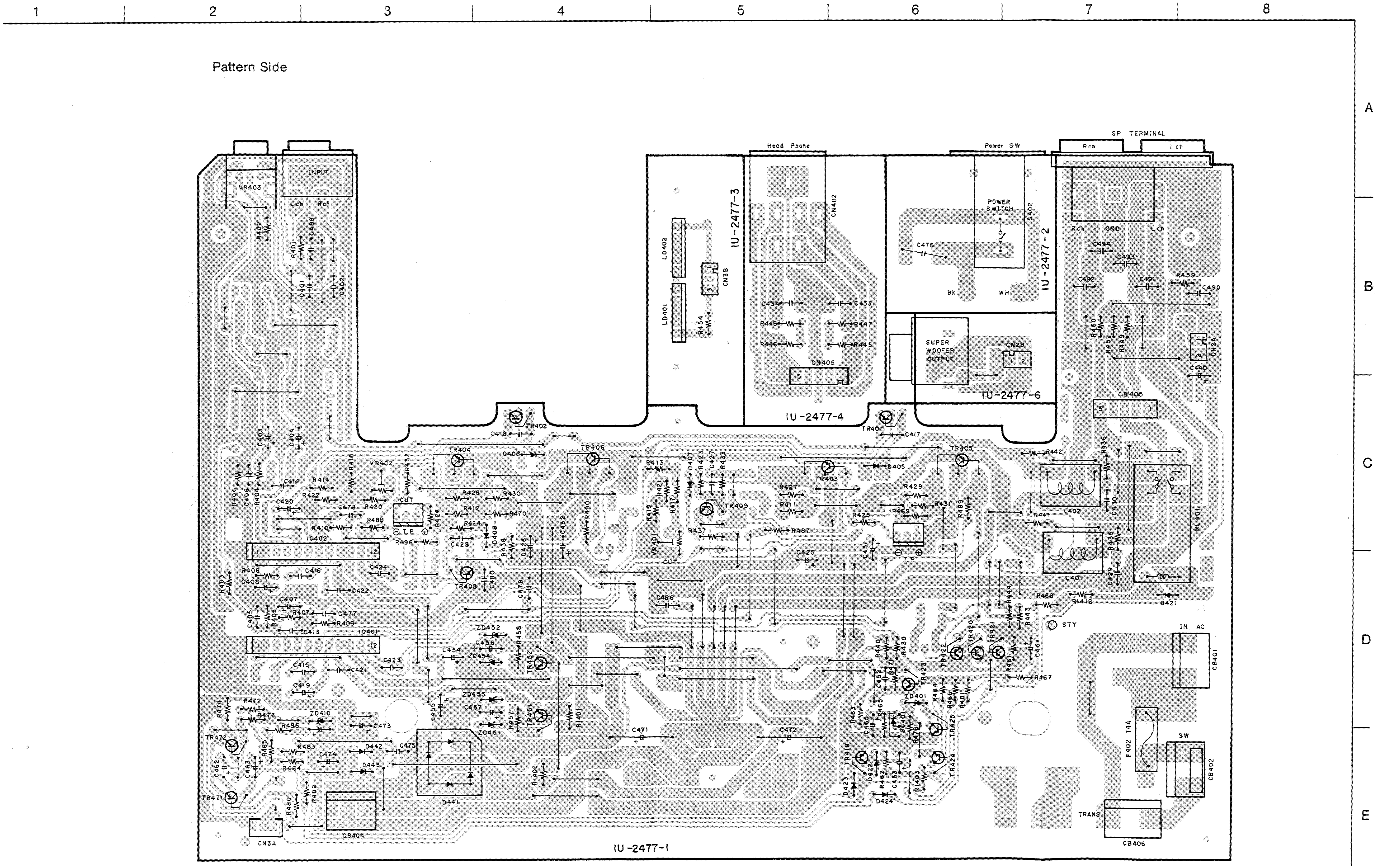
1U-2477 UPO-250 UNIT ASS'Y

Component Side


1
2
3
4
5
6
7
8
A
B
C
D
E
SP TERMINAL
Power SW
Head Phone
S402
1U-2477-2
WH
BK
C476
YG-H3
CN402
1U-2477-3
CN3B
LD402
LD401
R454
C433
C434
R447
R448
R445
R446
CN405
1U-2477-4
CN2B
JV222
1U-2477-6
VR403
JV83
R402
C499
R401
C490
R459
JV5
R452
JV223
CN2A
R449
R450
JV3
C440
CB405
TR401
C417
TR402
C418
TR405
TR403
TR406
TR404
D405
D406
D407
JV2
L402
L401
JV1
RL401
R442
R441
C430
R435
C429
D421
R468
R512
STY
AC IN
CB401
F402 T4A
SW
CB402
TRANS
CB406
E1
CB407
C451
R461
R467
TR421
TR420
TR422
R440
R439
C452
TR423
R464
ZD401
SC401
R465
C465
R463
TR425
R476
D422
TR424
C453
R462
TR419
D423
D424
R503
C425
C431
R425
R487
R427
R411
R429
R431
R469
R489
C432
C426
C428
C427
R417
R419
R437
CUT
R490
C486
C472
C471
JV20
JV19
JV37
JV38
JV39
JV41
JV42
JV43
JV44
ZD452
ZD454
ZD453
ZD451
C456
C454
C455
C457
TR452
TR451
R458
R457
R501
R502
JV70
D441
JV71
JV72
TR408
C480
C479
IC402
IC401
C424
C415
C422
C477
R409
C413
C405
C407
C408
R408
R405
R403
C414
C420
C478
R420
R488
R496
R410
R418
R422
R414
R432
C404
C403
C406
C423
C421
C416
ZD410
C473
C441
C474
C475
D442
D443
JV98
R486
R483
R484
R485
TR472
R472
R473
R474
C462
C463
JV97
JV99
TR471
R482
R480
CB404
JV100
CN3A
DENON
2222477202
YG-H3
1U-2477-1

POWER AMPLIFIER SECTION

Pattern Side


1
2
3
4
5
6
7
8
A
B
C
D
E
INPUT
Lch
Rch
VR403
Head Phone
Power SW
SP TERMINAL
Rch
Lch
GND
IU-2477-3
IU-2477-2
IU-2477-4
IU-2477-6
IU-2477-1
CN402
CN405
CN3B
CN2B
CN2A
CN3A
LD401
LD402
POWER SWITCH
S402
BK
WH
SUPER WOOFER OUTPUT
CB405
CB401
CB402
CB404
CB406
IN AC
SW
TRANS
F402 T4A
RL401
L401
L402
IC401
IC402
VR401
VR402
T.P
CUT
STY
TR401
TR402
TR403
TR404
TR405
TR406
TR408
TR409
TR419
TR420
TR421
TR422
TR423
TR424
TR425
TR451
TR452
TR471
TR472
D441
D421
D405
D406
ZD401
ZD410
ZD451
ZD452
ZD453
ZD454
C471
C472

POWER AMPLIFIER SECTION

NOTE ON PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W. Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

- **Resistors**

Ex.: RN 14K 2E 182 G FR

Type	Shape and performance	Power	Resistance	Allowable error	Others
RN	14K	2E	182	G	FR

RD : Carbon Film	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metallic oxide Film	2H : 1/2W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

※ **Resistance**

1 8 2 ⇨ 1800 ohm = 1.8 kohm
2 — Indicates number of zeros after effective number
18 — 2-digit effective number

- Units: ohm

1 R 2 ⇨ 1.2 ohm
2 — 1-digit effective number.
1R — 2-digit effective number, decimal point indicated by R.

- Units: ohm

※ **Capacity (electrolyte only)**

2 2 R ⇨ 2200 μF
R — Indicates number of zeros after effective number.
22 — 2-digit effective number.

- Units: μF

2 R 2 ⇨ 2.2 μF
2 — 1-digit effective number.
2R — 2-digit effective number, decimal point indicated by R.

- Units: μF

- **Capacitors**

Ex.: CE 04W 1H 2R2 M BP

Type	Shape and performance	Dielectric strength	Capacity	Allowable error	Others
CE	04W	1H	2R2	M	BP

CE : Aluminum foil electrolyte	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolyte	1A : 10V	G : ±2%	BP : Non-polar type
CS. : Tantalum electrolyte	1C : 16V	J : ±5%	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : ±20%	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : +80% −20%	U : UL part
CP : Oil	2A : 100V		C : CSA part
CM : Mica	2B : 125V	P : +100% −0%	W : UL-CSA type
CF : Metallized	2C : 160V		F : Lead wire forming
CH : Metallized	2D : 200V	C : ±0.25pF	
	2E : 250V	D : ±0.5pF	
	2H : 500V	= : Others	
	2J : 630V		

※ **Capacity (except electrolyte)**

2 R 2 ⇨ 2200pF = 2200 μF = 0.002 μF
2 — (More than 2) — Indicates number of zeros after effective number.
2R — 2-digit effective number.

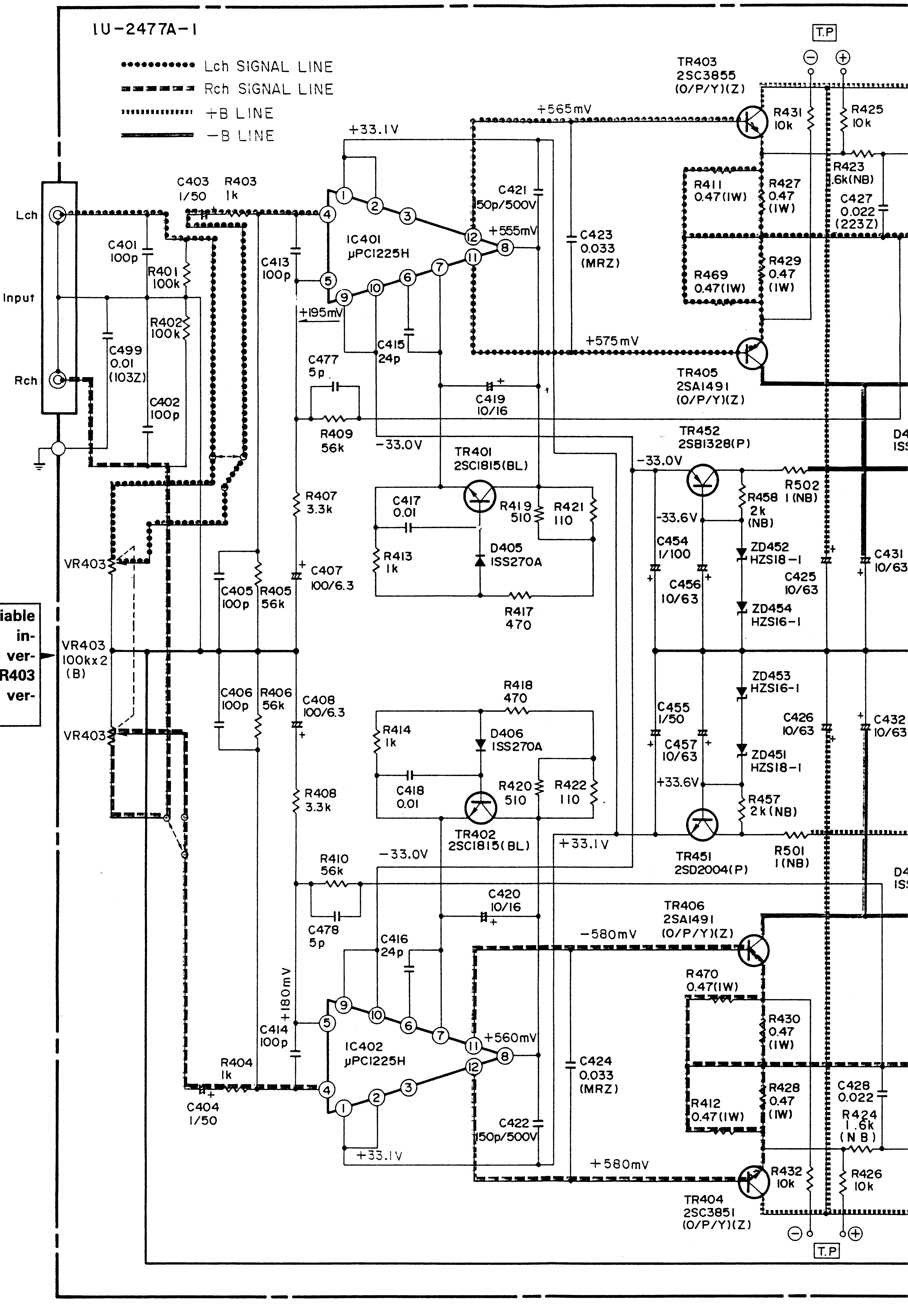
- Units: μF

2 2 1 ⇨ 220pF
1 — (0 or 1) — Indicates number of zeros after effective number.
22 — 2-digit effective number.

- Units: pF
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

1U-2477A P.W.B UNIT ASSY PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	
SEMICONDUCTORS GROUP				
IC401	263 0206 007	IC μPC1225H		
IC402	263 0206 007	IC μPC1225H		
TR401	273 0198 918	Transister 2SC1815(BL)		
TR402	273 0198 918	Transister 2SC1815(BL)		
TR407	273 0235 923	Transister 2SC1841(E/F)		
TR408	273 0235 923	Transister 2SC1841(E/F)		
TR419	273 0253 918	Transister 2SC2878(A/B)		
TR420	271 0191 906	Transister 2SA1048(GR)		
TR421	273 0317 906	Transister 2SC2458(BL)		
TR422	273 0317 906	Transister 2SC2458(BL)		
TR423	271 0094 935	Transister 2SA970(BL/GR)		
TR424	273 0187 932	Transister 2SC2240(BL/GR)		
TR425	273 0187 932	Transister 2SC2240(BL/GR)		
TR451	274 0151 903	Transister 2SD2004(P)		
TR452	272 0107 906	Transister 2SB1328(P)		
TR471	273 0317 906	Transister 2SC2458(BL)		
TR472	273 0317 906	Transister 2SC2458(BL)		
D405	276 0432 903	Diode 1SS270A		
D406	276 0049 914	Diode 1S2076A		
D407	276 0049 914	Diode 1S2076A		
D408	276 0432 903	Diode 1SS270A		
D421	276 0432 903	Diode 1SS270A		
D422	276 0432 903	Diode 1SS270A		
D423	276 0432 903	Diode 1SS270A		
D424	276 0432 903	Diode 1SS270A		
⚠D441	276 0338 007	Diode S4VB20F	Bridge	
D442	276 0553 905	Diode 1SR35-200A		
D443	276 0553 905	Diode 1SR35-200A		
D445	276 0519 004	Diode 1SR35-200A		
ZD401	276 0465 909	Zener Diode HZS7B-1	7 V	
ZD410	276 0477 900	Zener Diode HZS16-1	16 V	
ZD451	276 0478 909	Zener Diode HZS18-1	18 V	
ZD452	276 0478 909	Zener Diode HZS18-1	18 V	
ZD453	276 0477 900	Zener Diode HZS16-1	16 V	
ZD454	276 0477 900	Zener Diode HZS16-1	16 V	
LD401	393 9155 007	LED SLP-171E	LED	
LD402	393 9155 007	LED SLP-171E	LED	
SC401	279 0016 904	Thyristor SF0R1A42		
RESISTORS GROUP (Not included Carbon Film ±5%,1/4W Type. Refer to the Scematic Diagram for those Parts.)				
⚠R411	244 2055 912	Metal Oxide 0.47 ohm 1W(NB)	RS14B3AR47JNBS(S)	
⚠R412	244 2055 912	Metal Oxide 0.47 ohm 1W(NB)	RS14B3AR47JNBS(S)	
⚠R412	244 2055 941	Metal Oxide 330 ohm 1W (NB)	RS14B3A331JNBS(S)	
⚠R423	241 2380 934	Carbon Film 1.6kohm 1/4W(NB)	RD14B2E162JNBS	
⚠R424	241 2380 934	Carbon Film 1.6kohm 1/4W(NB)	RD14B2E162JNBS	
⚠R427	244 2055 912	Metal Oxide 0.47 ohm 1W(NB)	RS14B3AR47JNBS(S)	
⚠R428	244 2055 912	Metal Oxide 0.47 ohm 1W(NB)	RS14B3AR47JNBS(S)	
⚠R429	244 2055 912	Metal Oxide 0.47 ohm 1W(NB)	RS14B3AR47JNBS(S)	
⚠R430	244 2055 912	Metal Oxide 0.47 ohm 1W(NB)	RS14B3AR47JNBS(S)	
⚠R433	241 2380 950	Carbon Film 2k ohm 1/4W(NB)	RD14B2E202JNBS	
⚠R434	241 2380 950	Carbon Film 560 ohm 1/4W(NB)	RD14B2E202JNBS	
⚠R435	244 2043 937	Metal Oxide 10 ohm 1W (NB)	RS14B3A100JNBS(S)	
⚠R436	244 2043 937	Metal Oxide 10 ohm 1W (NB)	RS14B3A100JNBS(S)	
⚠R445	244 2050 933	Metal Oxide 180 ohm 1W (NB)	RS14B3A181JNBS(S)	
⚠R446	244 2050 933	Metal Oxide 180 ohm 1W (NB)	RS14B3A181JNBS(S)	
⚠R447	244 2050 933	Metal Oxide 180 ohm 1W (NB)	RS14B3A181JNBS(S)	
⚠R448	244 2050 933	Metal Oxide 180 ohm 1W (NB)	RS14B3A181JNBS(S)	
⚠R457	241 2380 950	Carbon Film 2k ohm 1/4W(NB)	RD14B2E202JNBS	
⚠R458	241 2380 950	Carbon Film 2k ohm 1/4W(NB)	RD14B2E202JNBS	
⚠R464	244 2051 932	Metal Oxide 3.3k ohm 1W(NB)	RS14B3A332JNBS(S)	
⚠R467	244 2043 953	Metal Oxide 470 ohm 1W (NB)	RS14B3A471JNBS(S)	
⚠R468	244 2052 973	Metal Oxide 560 ohm 1W (NB)	RS14B3A561JNBS(S)	
⚠R469	244 2055 912	Metal Oxide 0.47 ohm 1W(NB)	RS14B3AR47JNBS(S)	
⚠R470	244 2055 912	Metal Oxide 0.47 ohm 1W(NB)	RS14B3AR47JNBS(S)	
⚠R501	241 2387 908	Carbon Film 1 ohm 1/4W (NB)	RD14B2E010JNBS	
⚠R502	241 2387 908	Carbon Film 1 ohm 1/4W (NB)	RD14B2E010JNBS	
VR403	211 9122 000	Semi Fixed VR 100k ohm	Europe model only	
CAPACITORS GROUP				
C401	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J	
C402	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J	
C403	254 4260 948	Electrolytic 1μF/50 V	CE04W1H010M	
C404	254 4260 948	Electrolytic 1μF/50 V	CE04W1H010M	
C405	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J	
C406	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J	
C407	254 4250 929	Electrolytic 100μF/6.3 V	CE04W0J101M	
C408	254 4250 929	Electrolytic 100μF/6.3 V	CE04W0J101M	
C413	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J	
C414	253 4538 949	Ceramic 100pF/50 V	CC45SL1H101J	
C415	253 4536 996	Ceramic 24 pF/50 V	CC45SL1H240J	
C416	253 4536 996	Ceramic 24 pF/50 V	CC45SL1H240J	
C417	253 1181 904	Ceramic 0.01μF/50 V	CK45F1H103Z	
C418	253 1181 904	Ceramic 0.01μF/50 V	CK45F1H103Z	
C419	254 4254 909	Electrolytic 10μF/16 V	CE04W1C100M	
C420	254 4254 909	Electrolytic 10μF/16 V	CE04W1C100M	
C421	253 1126 901	Ceramic 150 pF/500 V	CK45B2H151K	
C422	253 1181 917	Ceramic 0.022μF/50 V	CK45F1H223Z	
C423	255 4223 988	Plastic Film 0.33μF/50 V	CQ93M1H333J(MRZ)	
C424	255 4223 988	Plastic Film 0.33μF/50 V	CQ93M1H333J(MRZ)	
C425	254 4262 917	Electrolytic 10μF/63 V	CE04W1J100M	
C426	254 4262 917	Electrolytic 10μF/63 V	CE04W1J100M	
C427	253 1181 917	Ceramic 0.022μF/50 V	CK45F1H223Z	
C428	253 1181 917	Ceramic 0.022μF/50 V	CK45F1H223Z	
C429	256 1034 979	Metalized 0.1μF/50 V	CF93A1H104J	
C430	256 1034 979	Metalized 0.1μF/50 V	CF93A1H104J	
C431	254 4262 917	Electrolytic 10μF/63 V	CE04W1J100M	
C432	254 4262 917	Electrolytic 10μF/63 V	CE04W1J100M	
C433	253 1181 904	Ceramic 0.01μF/50 V	CK45F1H103Z	
C434	253 1181 904	Ceramic 0.01μF/50 V	CK45F1H103Z	
C440	253 1181 904	Ceramic 0.01μF/50 V	CK45F1H103Z	
C441	254 4260 948	Electrolytic 1μF/50 V	CE04W1H010M	
C451	254 4250 945	Electrolytic 330μF/6.3 V	CE04W0J331M	
C452	253 1181 904	Ceramic 0.01μF/50 V	CK45F1H103Z	
C453	254 4252 930	Electrolytic 100μF/10 V	CE04W1A101M	
C454	254 4263 945	Electrolytic 1μF/100 V	CE04W2A010M	
C455	254 4263 945	Electrolytic 1μF/100 V	CE04W2A010M	
C457	254 4262 917	Electrolytic 10μF/63 V	CE04W1J100M	
C458	254 4262 917	Electrolytic 10μF/63 V	CE04W1J100M	
C462	254 4260 951	Electrolytic 2.2μF/50 V	CE04W1H2R2M	
C463	254 4260 951	Electrolytic 2.2μF/50 V	CE04W1H2R2M	
C465	254 4260 980	Electrolytic 10μF/50 V	CE04W1H100M	
C471	254 4370 702	Electrolytic 8200μF/63 V	CE04W1J822MC(DL)	
C472	254 4370 702	Electrolytic 8200μF/63 V	CE04W1J822MC(DL)	
C474	254 4263 958	Electrolytic 2.2μF/100 V	CE04W2A2R2M	
C475	256 1049 702	Metalized 0.22μF/250 V	CF93B2E224K	
⚠C476	253 8014 702	Ceramic 0.01μF/400V(AC)	CK45F2GAC103MC	
C477	253 4535 955	Ceramic 5 pF/50 V	CC45SL1H050C	
C478	253 4535 955	Ceramic 5 pF/50 V	CC45SL1H050C	
C481	254 4262 069	Electrolytic 22μF/63 V	CE04W1J221M	
C490	254 4254 909	Electrolytic 10μF/16 V	CE04W1C100M	
C491	253 1121 906	Ceramic 5600 pF/50 V	CK45B1H562K	
C492	253 1121 906	Ceramic 5600 pF/50 V	CK45B1H562K	
C493	253 1114 900	Ceramic 1500 pF/50 V	CK45B1H152K	
C494	253 1114 900	Ceramic 1500 pF/50 V	CK45B1H152K	
C499	253 1181 904	Ceramic 0.01μF/50 V	CK45F1H103Z	
OTHERS GROUP				
	—	(P.W.Board)		1
	202 0040 909	Fuse Clip	for F402	2
	417 0472 001	Heat Sink		2
	473 7002 018	Tapping Screw(S)3×8		4
	204 8420 006	Headphone Jack(6.5)		1
	205 0551 002	4 P Terminal		1
	205 0550 003	4 P Terminal	Europe model	1
	204 8406 004	1 P Pin Jack	U.K. model	1
	205 0274 004	2 P Conn. Base		1
L401	235 0068 004	Inductor 1mH		1
L402	235 0068 004	Inductor 1mH		1
⚠SW402	212 1103 004	Power Switch		1
⚠F402	206 1015 058	Fuse 1.6 A		1
RL401	214 0161 001	Relay(VB24STCU)		1
	461 0415 007	Rubber Bush		1
T.P	205 0190 036	3 P NH Conn. Base		2
CB405	205 0233 058	5 P NH Conn. Base		1
CN3A	205 0343 032	3 P Conn. Base(KR-PH)		1
CB404	205 0653 036	3 P VH Conn. Base		1
CB401	205 0581 001	2 P VH Conn. Base		1
CB402	205 0581 001	2 P VH Conn. Base		1
CB406	205 0581 001	2 P VH Conn. Base		1
	205 0092 037	3 P Wrapping Terminal		4
STY	205 0452 017	Style Pin		1
CN2A	203 2249 015	2 P SCN-SCN Conn. Cord		1
CN3B	203 4789 052	3 P KR-DA Conn. Cord		1
CN405	203 8346 019	5 P EH-SCN Conn. Cord		1
CB402	203 4776 023	3 P VH Conn. Cord(2P)		1
	125 9006 016	UL Tube(L=7)	for D1,29	1
	125 9006 087	UL Tube(L=25)	for D2,4	1
	513 0815 089	Fuse Label(T1.6 A)		1

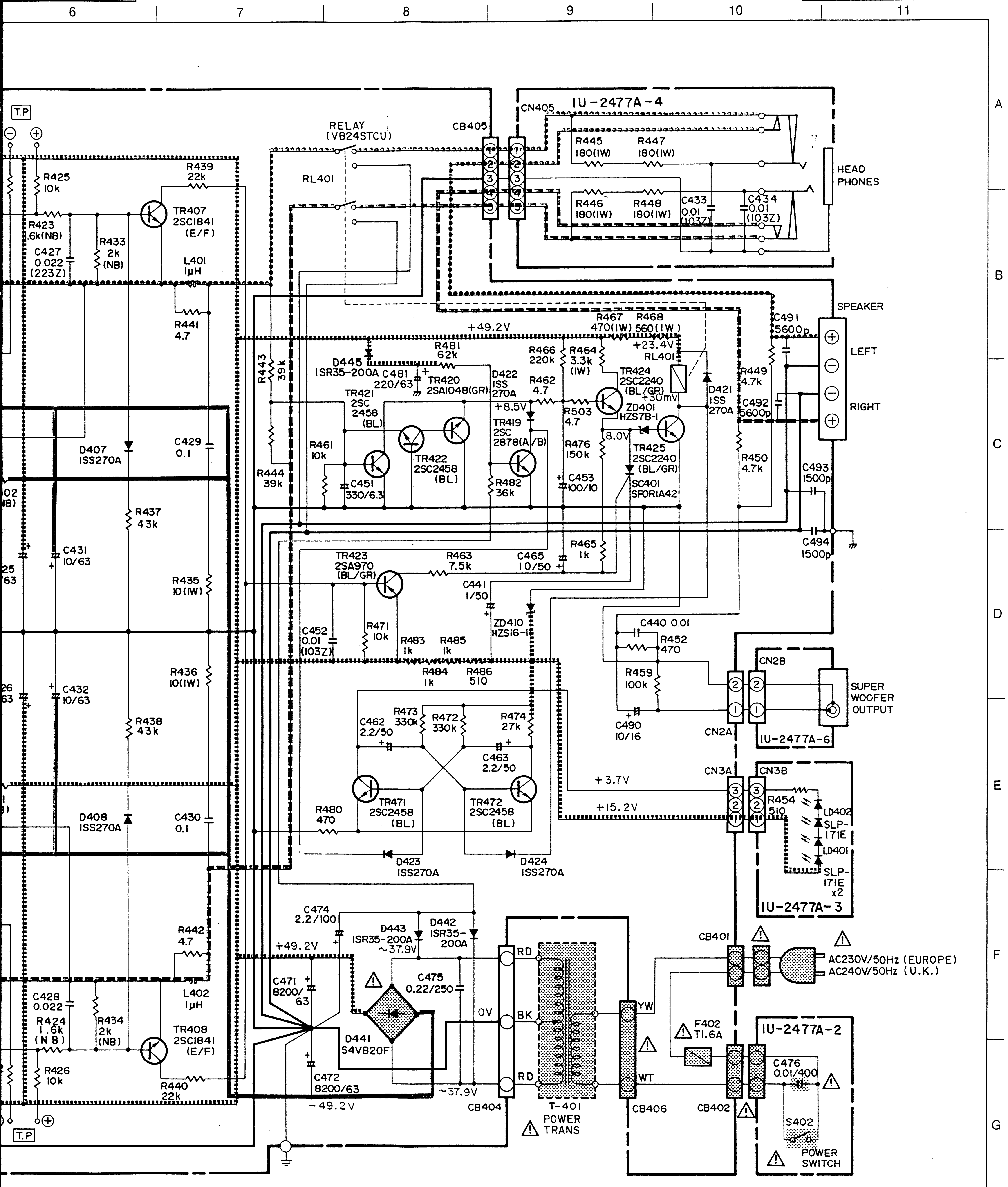

1U-2477A-1
Lch SIGNAL LINE
Rch SIGNAL LINE
+B LINE
−B LINE
Lch
Input
Rch
C401 100p
R401 100k
R402 100k
C499 0.01 (103Z)
C402 100p
C403 1/50
R403 1k
C413 100p
IC401 μPC1225H
+195mV
C415 24p
C477 5p
R409 56k
−33.0V
+33.1V
+565mV
+555mV
C421 50p/500V
C423 0.033 (MRZ)
+575mV
C419 10/16
TR401 2SC1815(BL)
C417 0.01
R413 1k
R419 510
R421 110
D405 1SS270A
R417 470
R407 3.3k
C407 100/6.3
C405 100p
R405 56k
VR403
VR403 100kx2 (B)
C406 100p
R406 56k
C408 100/6.3
R408 3.3k
R418 470
R414 1k
D406 1SS270A
C418 0.01
R420 510
R422 110
TR402 2SC1815(BL)
R410 56k
C478 5p
C420 10/16
C416 24p
+180mV
C414 100p
IC402 μPC1225H
R404 1k
C404 1/50
+560mV
C422 50p/500V
C424 0.033 (MRZ)
−580mV
+580mV
TR403 2SC3855 (O/P/Y)(Z)
T.P
R431 10k
R425 10k
R423 1.6k(NB)
R411 0.47(1W)
R427 0.47 (1W)
C427 0.022 (223Z)
R469 0.47(1W)
R429 0.47 (1W)
TR405 2SA1491 (O/P/Y)(Z)
TR452 2SB1328(P)
−33.0V
−33.6V
R502 1(NB)
R458 2k (NB)
C454 1/100
C456 10/63
ZD452 HZS18-1
C425 10/63
ZD454 HZS16-1
C431 10/63
ZD453 HZS16-1
C455 1/50
C457 10/63
C426 10/63
C432 10/63
ZD451 HZS18-1
+33.6V
R457 2k(NB)
TR451 2SD2004(P)
R501 1(NB)
TR406 2SA1491 (O/P/Y)(Z)
R470 0.47(1W)
R430 0.47 (1W)
R412 0.47(1W)
R428 0.47 (1W)
C428 0.022
R424 1.6k (NB)
TR404 2SC3851 (O/P/Y)(Z)
R432 10k
R426 10k

Input control variable resistor (VR403) included for Europe versions only (no VR403 included for U.K. versions)

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manifacturer.

CAUTION:
Before retu
leakage cur
defective.

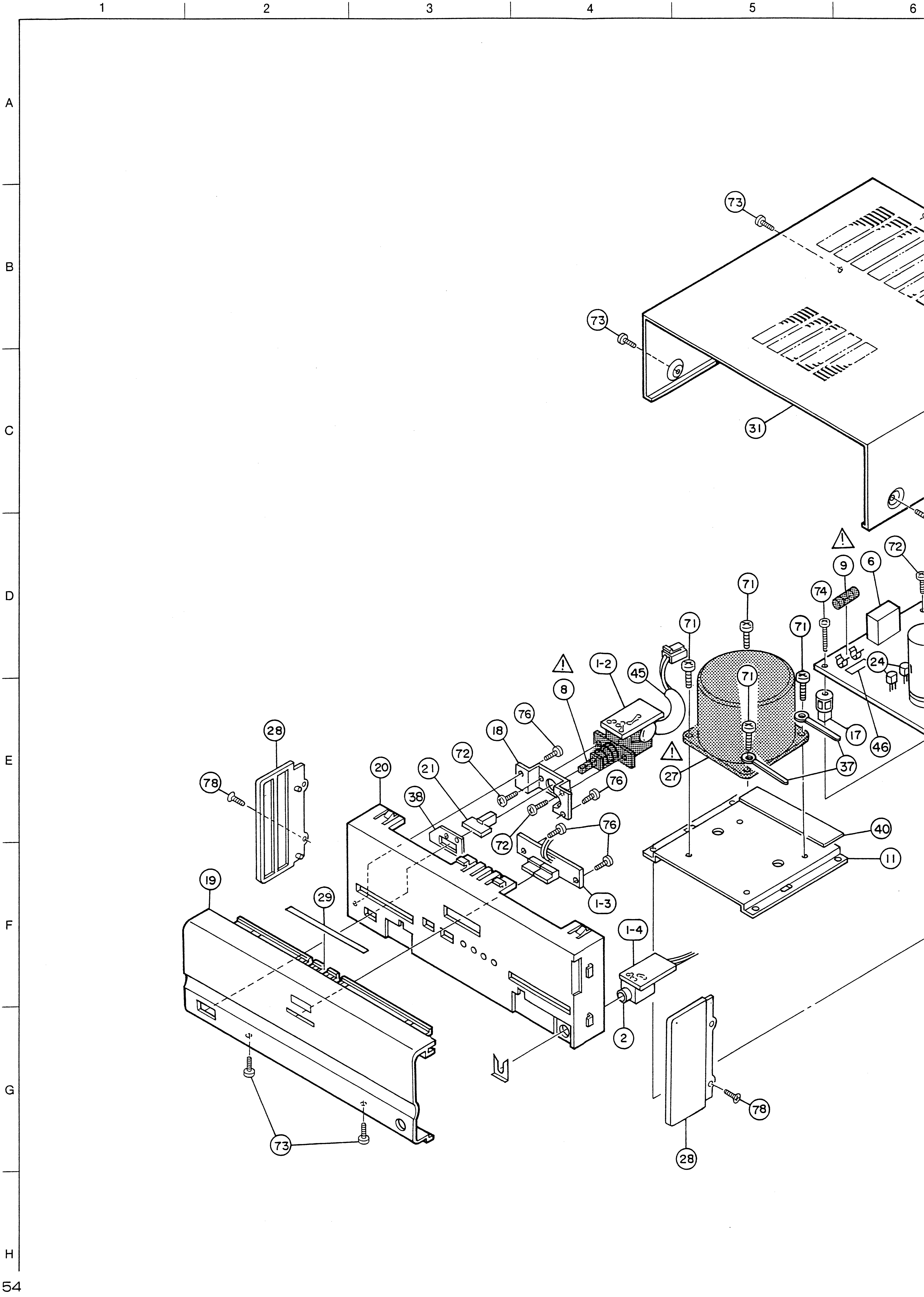
WARNING
DO NOT ret

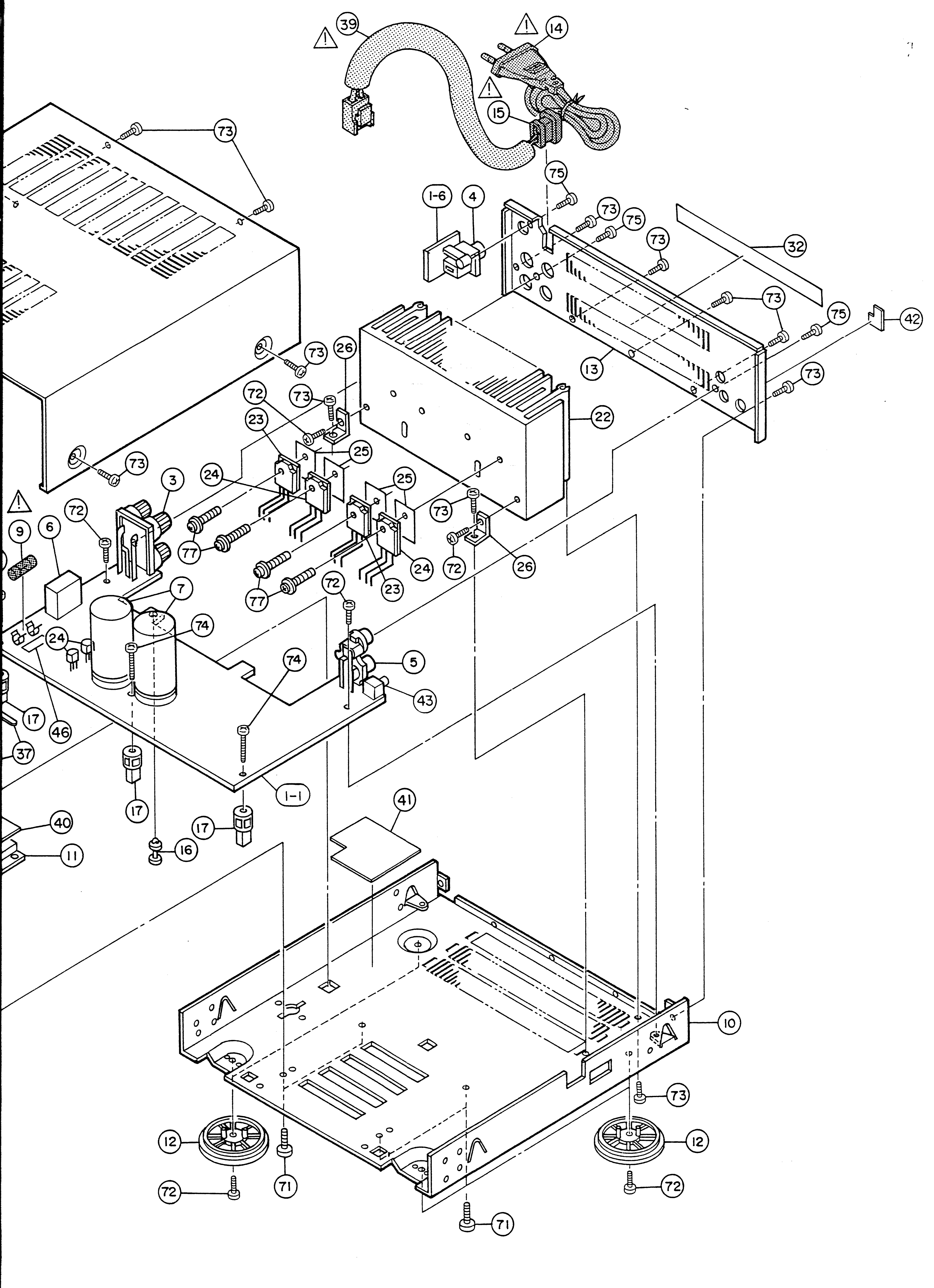

6
7
8
9
10
11
A
B
C
D
E
F
G
T.P
R425
10k
R439
22k
TR407
2SC1841
(E/F)
R423
1.6k(NB)
R433
2k
(NB)
C427
0.022
(223Z)
L401
1μH
R441
4.7
RELAY
(VB24STCU)
RL401
CB405
CN405
IU-2477A-4
R445
180(1W)
R447
180(1W)
R446
180(1W)
R448
180(1W)
C433
0.01
(103Z)
C434
0.01
(103Z)
HEAD
PHONES
SPEAKER
LEFT
RIGHT
R467
470(1W)
R468
560(1W)
C491
5600p
C492
5600p
+49.2V
R481
62k
R443
39k
D445
1SR35-200A
C481
220/63
TR420
2SA1048(GR)
TR421
2SC
2458
(BL)
D422
1SS
270A
R466
220k
R464
3.3k
(1W)
+23.4V
RL401
TR424
2SC2240
(BL/GR)
R462
4.7
+30mV
ZD401
HZS7B-1
D421
1SS
270A
R449
4.7k
+8.5V
R503
4.7
TR419
2SC
2878(A/B)
8.0V
TR425
2SC2240
(BL/GR)
D407
1SS270A
C429
0.1
R461
10k
TR422
2SC2458
(BL)
R476
150k
SC401
SFOR1A42
R450
4.7k
C493
1500p
R444
39k
C451
330/6.3
R482
36k
C453
100/10
C494
1500p
R437
43k
C431
10/63
TR423
2SA970
(BL/GR)
R463
7.5k
C465
10/50
R465
1k
R435
10(1W)
C441
1/50
C452
0.01
(103Z)
R471
10k
R483
1k
R485
1k
ZD410
HZS16-1
C440 0.01
R452
470
R436
10(1W)
C432
10/63
R484
1k
R486
510
R459
100k
CN2B
SUPER
WOOFER
OUTPUT
R438
43k
C462
2.2/50
R473
330k
R472
330k
R474
27k
C463
2.2/50
C490
10/16
CN2A
IU-2477A-6
+3.7V
CN3A
CN3B
TR471
2SC2458
(BL)
TR472
2SC2458
(BL)
+15.2V
R454
510
LD402
SLP-
171E
LD401
SLP-
171E
x2
D408
1SS270A
C430
0.1
R480
470
D423
1SS270A
D424
1SS270A
IU-2477A-3
C474
2.2/100
D443
1SR35-200A
D442
1SR35-
200A
~37.9V
CB401
AC230V/50Hz (EUROPE)
AC240V/50Hz (U.K.)
R442
4.7
+49.2V
RD
C471
8200/
63
C475
0.22/250
L402
1μH
C428
0.022
R434
2k
(NB)
R424
1.6k
(NB)
0V
BK
YW
F402
T1.6A
IU-2477A-2
TR408
2SC1841
(E/F)
D441
S4VB20F
R426
10k
R440
22k
C472
8200/63
~37.9V
RD
WT
C476
0.01/400
-49.2V
CB404
T-401
POWER
TRANS
CB406
CB402
S402
POWER
SWITCH

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is defective.

WARNING
DO NOT return the unit to the customer until the problem is located and corrected.

NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.


A
B
C
D
E
F
G
H
1-2
1-3
1-4


1-6
1-1

EXPLODED VIEW OF PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	1U- 2477 A	P.W.Board Unit Assy		1^{S}
1-1	—	Main Unit		(1)
1-2	—	Power Switch Unit		(1)
1-3	—	Power LED Unit		(1)
1-4	—	Head Phone Unit		(1)
1-5	—	—		
1-6	—	Super W. Output Unit		(1)
2	204 8420 006	Head Phone Jack(6.5)		1
3	205 0551 002	4 P Terminal	Europe model	1
3	205 0550 003	4 P Terminal	U.K. model	1
4	204 8406 004	1 P Pin Jack		1
5	205 0274 004	2 P Connector Base		1
6	214 0161 001	Relay(VB24STOU)	RL401	
7	254 4370 702	Chemicon 8200µF/63 V	C471,472	2
△ 8	212 1103 004	Power Switch(TV-5)		1
△ 9	206 1015 058	Fuse 1.6 A(T)	F402	1
◉ 10	411 1184 329	Main Chassis		1
◉ 11	412 9160 607	Trans Bracket		1
12	104 0253 007	Foot Assy		4
◉ 13	105 1045 149	Rear Panel	Europe model	1
◉ 13	105 1045 152	Rear Panel	U.K. model	1
△ 14	206 2089 106	AC Cord W/Conn.		1
△ 15	445 0056 008	Cord Bush		1
◉ 16	412 2814 028	Card Spacer(L=10)		1
◉ 17	412 3548 005	P.W.B Catcher		3
◉ 18	412 3532 105	Power Switch Bracket		1
◉ 19	144 2225 219	Front Panel Assy		1
◉ 20	146 1405 311	Inner Panel		1
21	113 9263 005	Power Knob Assy		1
22	417 0465 102	Power Radiator		1
23	271 0240 035	Transistor 2SA1491LB (O/P/Y)(Z)	TR405,406	2
24	273 0389 031	Transistor 2SC3855LB (O/P/Y)(Z)	TR423,424	2
25	415 0234 007	Insulating Sheet		4
◉ 26	412 3531 009	Radiator Bracket		2
△ 27	233 6003 106	Power Trans.	Europe model	1
△ 27	233 9653 003	Power Trans.	U.K. model	1
28	146 1400 303	Side Plate		2
29	122 0183 007	Spacer	100×10×T0.5	1
★ 30	445 8004 007	Wire Clamper		5
31	102 0518 212	Top Cover		1
32	513 9317 009	Rating Sheet	Europe model	1
32	513 9317 012	Rating Sheet	U.K. model	1
33	—	—		
34	—	—		
★ 35	445 0033 005	Wire Clamp Band		1
★ 36	445 8031 009	Wire Clamper		1
37	445 0048 003	Cord Holder(L=76)		2
38	441 1482 006	Power Knob Guide		1
△ 39	415 0461 016	UL Tube(ϕ4.3)Black		1
40	415 0643 038	Insulaying Sheet	15×30×T0.5	1
41	415 9067 000	Insulaying Sheet	T0.5	1
42	513 9325 004	Blind Sheet	U.K.model only	1
43	211 9122 000	Semi Fixed Resistor 100k ohm	Europe model only	1
44	—	—		
45	125 9006 087	UL Tube	ϕ4.2×25	2
46	513 0815 089	Fuse Label(T-1.6A)		1
47	—	—		
48				
SCREWS				
71	473 7004 016	Tapping Screw(S)4×6		8
72	473 7002 018	Tapping Screw(S)3×8		16
73	473 7015 005	Tapping Screw(S)3×6	Black	17
74	473 7508 046	Tapping Screw(P)3×16	Black	3
75	477 0064 107	Fixing Screw		3
76	473 7505 007	Tapping Screw(P)2.6×8		4
77	473 8007 009	Cup Screw 3×12		4
78	473 7009 008	F.Tapping Screw(S)3×6		2
79				
PACKING & ACCESSORIES (Not included EXPLODED VIEW)				
101	505 0102 089	Stylen Paper	700×700	1
102	503 1029 107	Cushion		1
◉ 103	503 1032 107	Top Cushion		1
◉ 104	501 1658 006	Carton Case		1
105	GEN 2236 -01	Envelope Sub Assy		1^{S}
105-1	505 8006 019	Envelope		(1)
105-2	231 0922 009	Loop Antenna		(1)
105-3	395 0019 025	FM Ant. Assy		(1)
105-4	399 0168 004	Remote Control	RC-154	(1)
105-5	—	Battery		(2)
105-6	203 2319 000	2 P Pin Cord	L=500	(1)
105-7	203 2223 002	2 P Pin Cord	L=1000	(3)
105-8	203 2315 004	Stereo Mini Plug Cord	L=500	(1)
105-9	203 2315 017	Stereo Mini Plug Cord	L=1000	(1)
105-10	529 0072 005	FM Ant. Adaptor		(1)

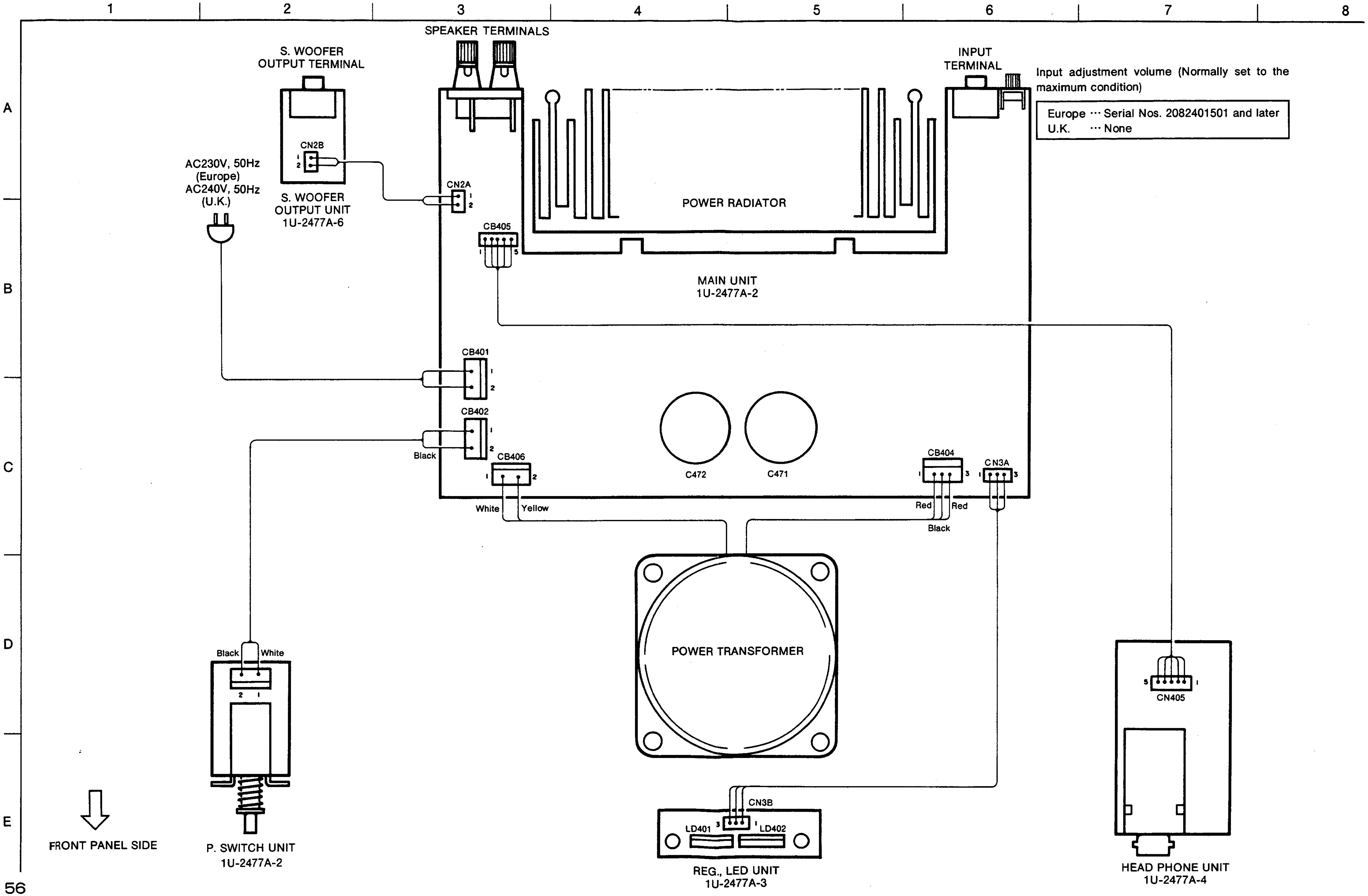
NOTE ON PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:
Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

POWER AMPLIFIER SECTION

WIRING DIAGRAM


1
2
3
4
5
6
7
8
A
B
C
D
E
SPEAKER TERMINALS
S. WOOFER OUTPUT TERMINAL
INPUT TERMINAL
CN2B
S. WOOFER OUTPUT UNIT 1U-2477A-6
AC230V, 50Hz (Europe)
AC240V, 50Hz (U.K.)
CN2A
POWER RADIATOR
CB405
MAIN UNIT 1U-2477A-2
CB401
CB402
Black
CB406
White
Yellow
C472
C471
CB404
CN3A
Red
Red
Black
POWER TRANSFORMER
Black
White
CN405
CN3B
LD401
LD402
FRONT PANEL SIDE
P. SWITCH UNIT 1U-2477A-2
REG., LED UNIT 1U-2477A-3
HEAD PHONE UNIT 1U-2477A-4

Input adjustment volume (Normally set to the maximum condition)

Europe ··· Serial Nos. 2082401501 and later
U.K. ··· None

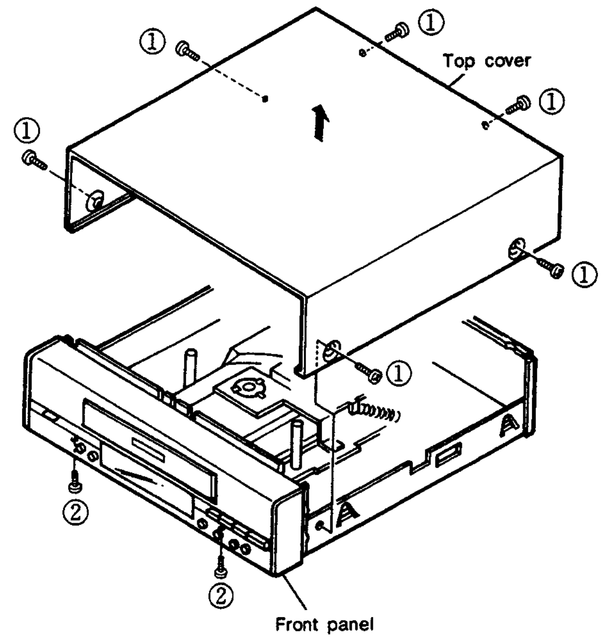
DISASSEMBLY PROCEDURES

(Follow these procedures in reverse order to reassemble.)

1. Removing the top cover and front panel

① Remove the 6 screws which fasten the top cover.

② Remove the 2 screws of the bottom side which fasten the front panel.

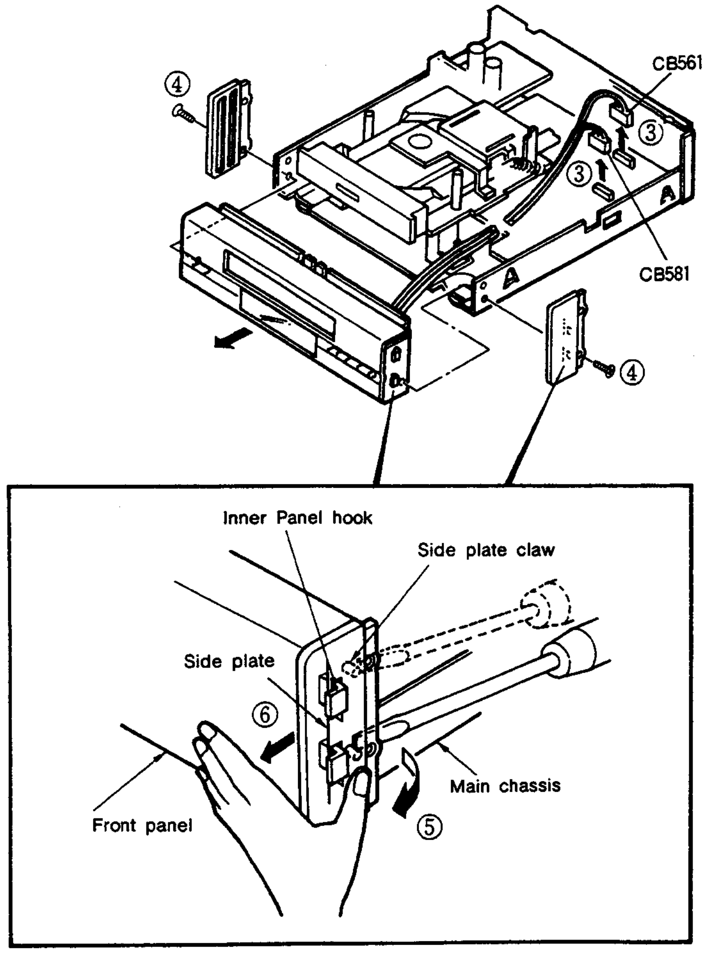

①
①
①
Top cover
①
①
①
②
②
Front panel

③ Disconnect connectors CB561 and CB581 which are attached to the main unit.

④ Remove the 2 screws which fasten the side plate.

⑤ While disengaging in the direction of the arrow the tabs of the side plate and the holes of the main chassis (with a flat-bladed screwdriver),

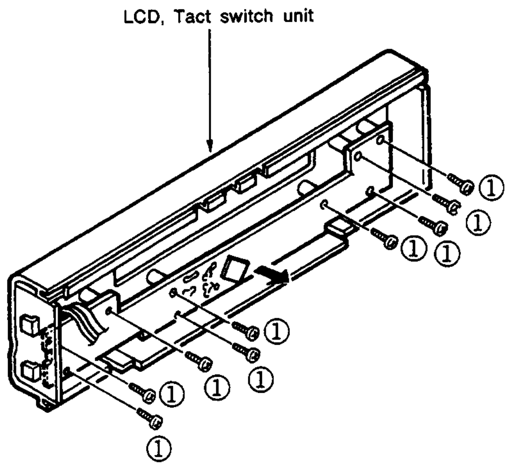
⑥ Use your fingers to push out the hook of the inner panel from the side plate in the direction of the arrow.
Using the same method for the left side, remove the side plate.
Remove the front panel in the direction of the arrow.


④
CB561
③
③
CB581
④
Inner Panel hook
Side plate claw
Side plate
⑥
Main chassis
Front panel
⑤

2. Removal of the Various Boards

LCD TACT SWITCH UNIT 1U-2478-2

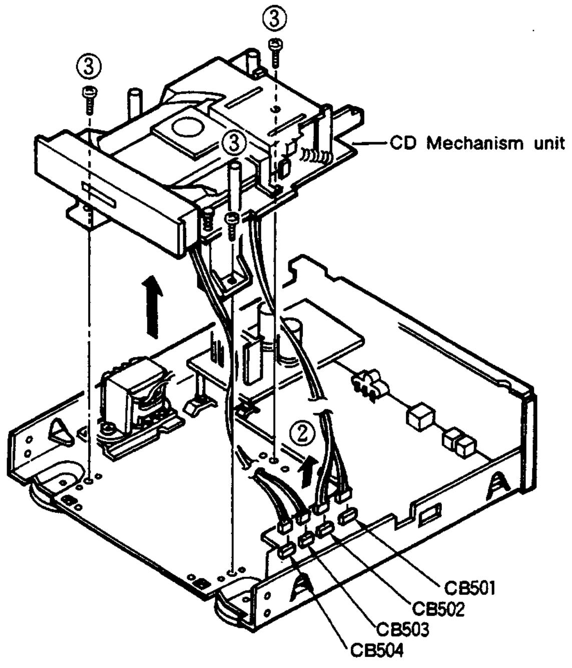
① Remove the 9 screws which fasten the LCD Tact switch unit and remove the board in the direction of the arrow.


LCD, Tact switch unit
①
①
①
①
①
①
①
①
①

3. Removal of the CD Mechanism Unit

② Disconnect connectors CB501, CB502, CB503, and CB504 which are attached to the main unit.

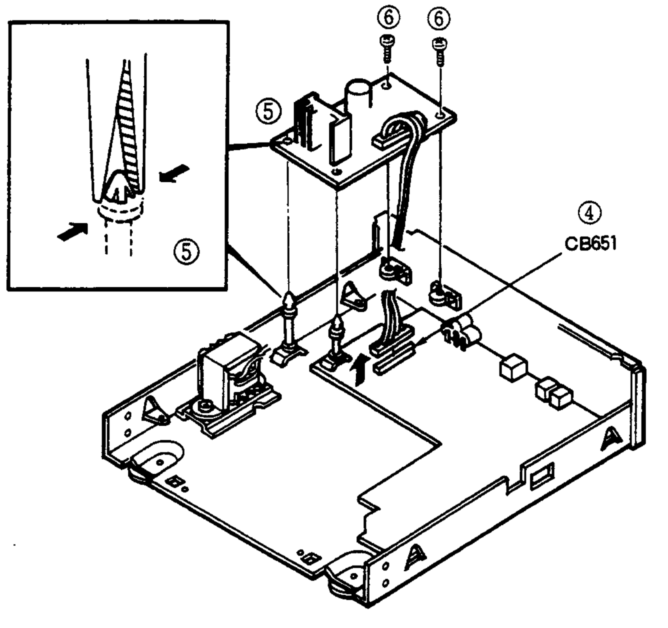
③ Remove the 3 screws which fasten the CD mechanism unit and remove the mechanism unit in the direction of the arrow.


③
③
③
CD Mechanism unit
②
CB501
CB502
CB503
CB504

CD PLAYER SECTION

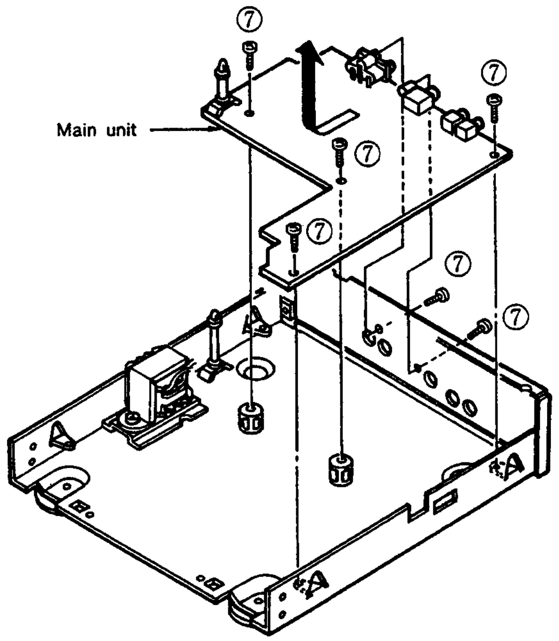
POWER UNIT 1U-2478-3

④ Disconnect connector CB651 which is attached to the main unit.
⑤ Use a pair of long-nosed pliers to disengage the board catch, which fastens the power unit, in the direction of the arrow.
⑥ Remove the 2 screws which fasten the power unit and remove the board in the direction of the arrow.

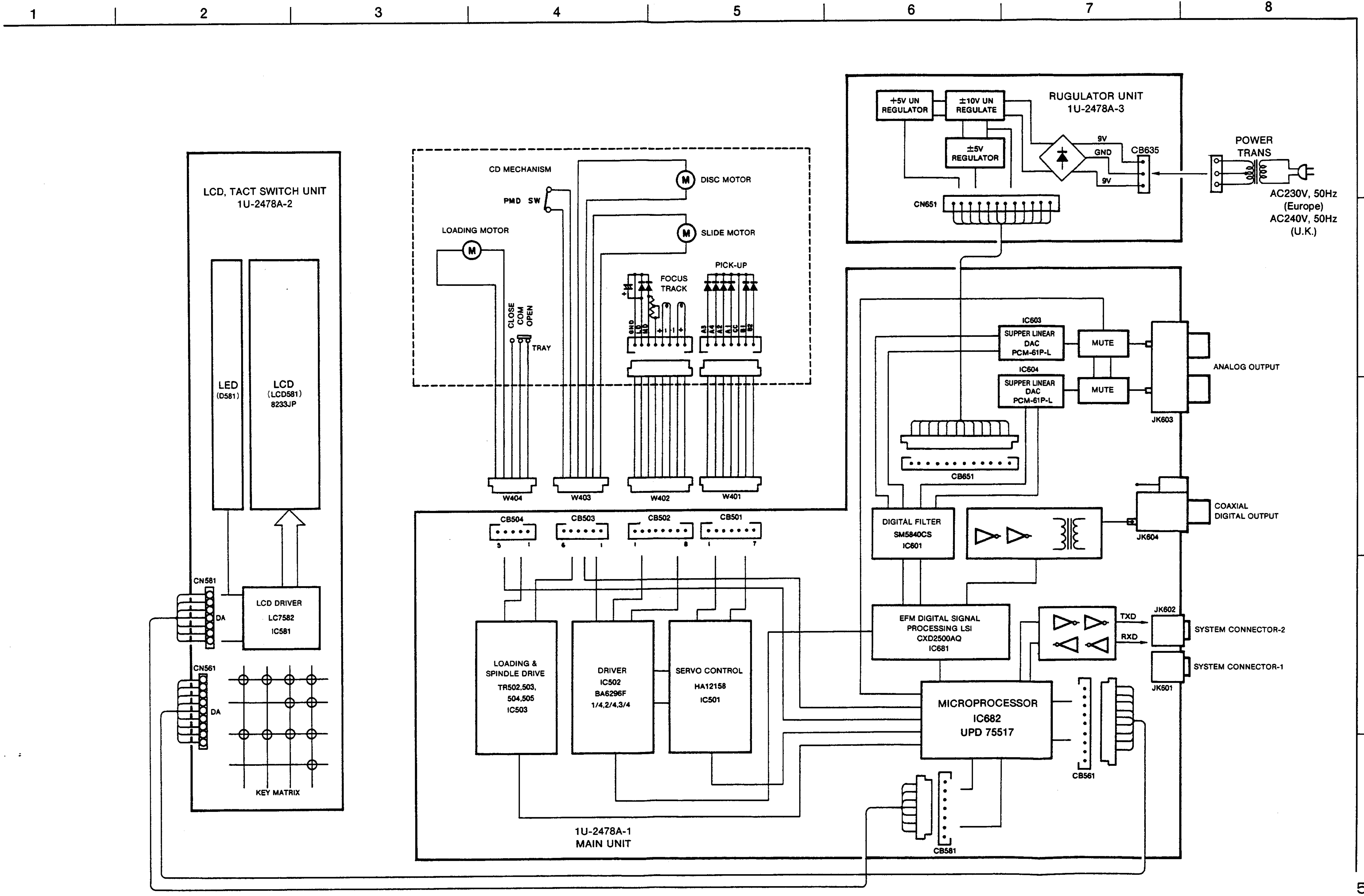


MAIN UNIT 1U-2478-1

⑦ Remove the 6 screws which fasten the main unit and remove the board in the direction of the arrow.



BLOCK DIAGRAM

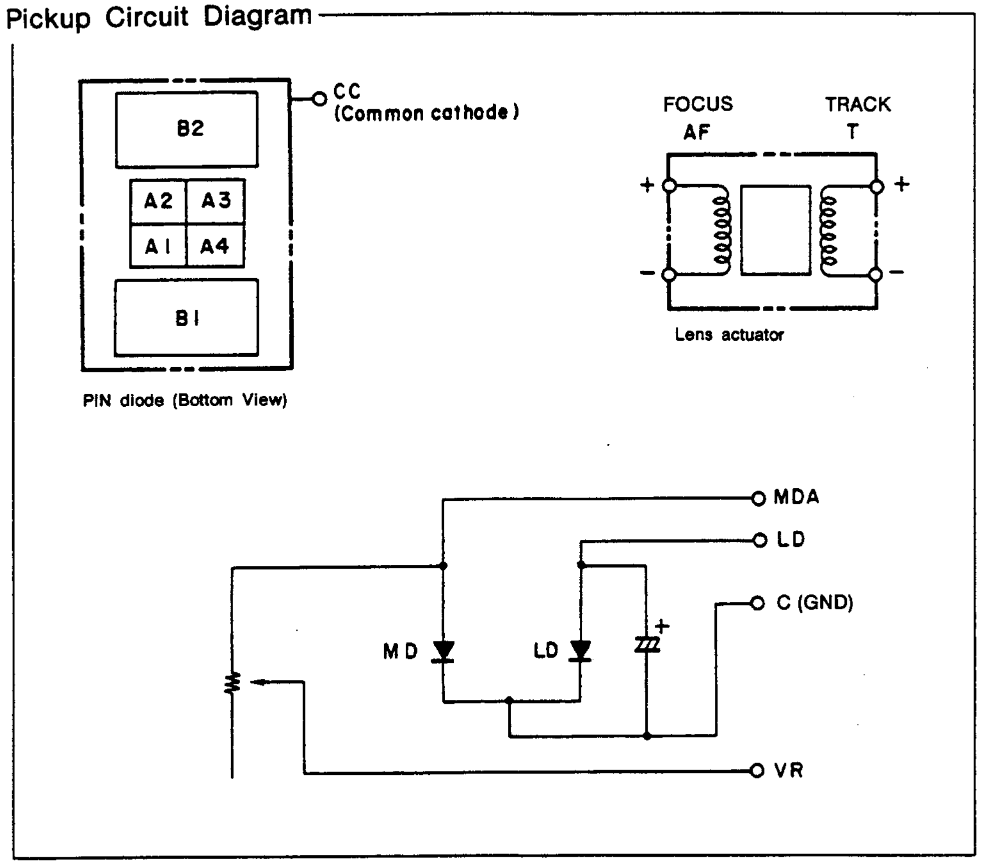

1
2
3
4
5
6
7
8
A
B
C
D
E
RUGULATOR UNIT
1U-2478A-3
+5V UN REGULATOR
±10V UN REGULATE
±5V REGULATOR
9V
GND
9V
CB635
CN651
POWER TRANS
AC230V, 50Hz (Europe)
AC240V, 50Hz (U.K.)
LCD, TACT SWITCH UNIT
1U-2478A-2
LED (D581)
LCD (LCD581) 8233JP
CD MECHANISM
PMD SW
DISC MOTOR
LOADING MOTOR
SLIDE MOTOR
FOCUS
TRACK
PICK-UP
CLOSE
COM
OPEN
TRAY
GND
LD
MD
A3
A4
A2
A1
CC
B1
B2
IC603
SUPPER LINEAR DAC PCM-61P-L
IC604
SUPPER LINEAR DAC PCM-61P-L
MUTE
MUTE
ANALOG OUTPUT
JK603
CB651
W404
W403
W402
W401
CB504
CB503
CB502
CB501
5
1
6
1
1
8
1
7
DIGITAL FILTER SM5840CS IC601
COAXIAL DIGITAL OUTPUT
JK604
CN581
DA
LCD DRIVER LC7582 IC581
CN561
DA
KEY MATRIX
LOADING & SPINDLE DRIVE TR502,503, 504,505 IC503
DRIVER IC502 BA6296F 1/4,2/4,3/4
SERVO CONTROL HA12158 IC501
EFM DIGITAL SIGNAL PROCESSING LSI CXD2500AQ IC681
TXD
RXD
JK602
SYSTEM CONNECTOR-2
SYSTEM CONNECTOR-1
JK601
MICROPROCESSOR IC682 UPD 75517
CB561
CB581
1U-2478A-1
MAIN UNIT

CD PLAYER SECTION

LASER PICKUP

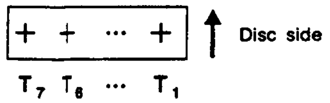
Connections Diagram

Pickup Circuit Diagram


B2
A2
A3
A1
A4
B1
CC
(Common cathode)
PIN diode (Bottom View)
FOCUS
AF
TRACK
T
+
-
+
-
Lens actuator
MDA
LD
C (GND)
VR
MD
LD
+

1. PD connector

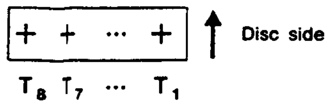
PH pin post 7 pins (Type number B7B-PH-K-S manufactured by Nippon Atchaku Tanshi Hanbai K.K.)


+ + ··· +
Disc side
T_7 T_6 ··· T_1

Tn	1	2	3	4	5	6	7
Item	A_4	A_3	A_2	A_1	CC	B_1	B_2

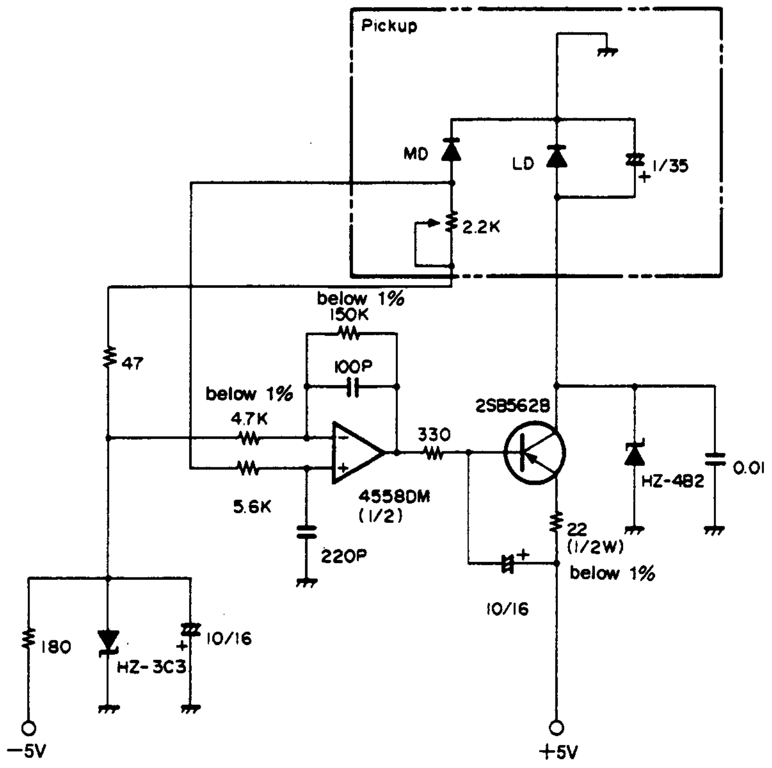
2. LD actuator connector

PH pin post 8 pins (Type number B8B-PH-K-S manufactured by Nippon Atchaku Tanshi Hanbai K.K.)

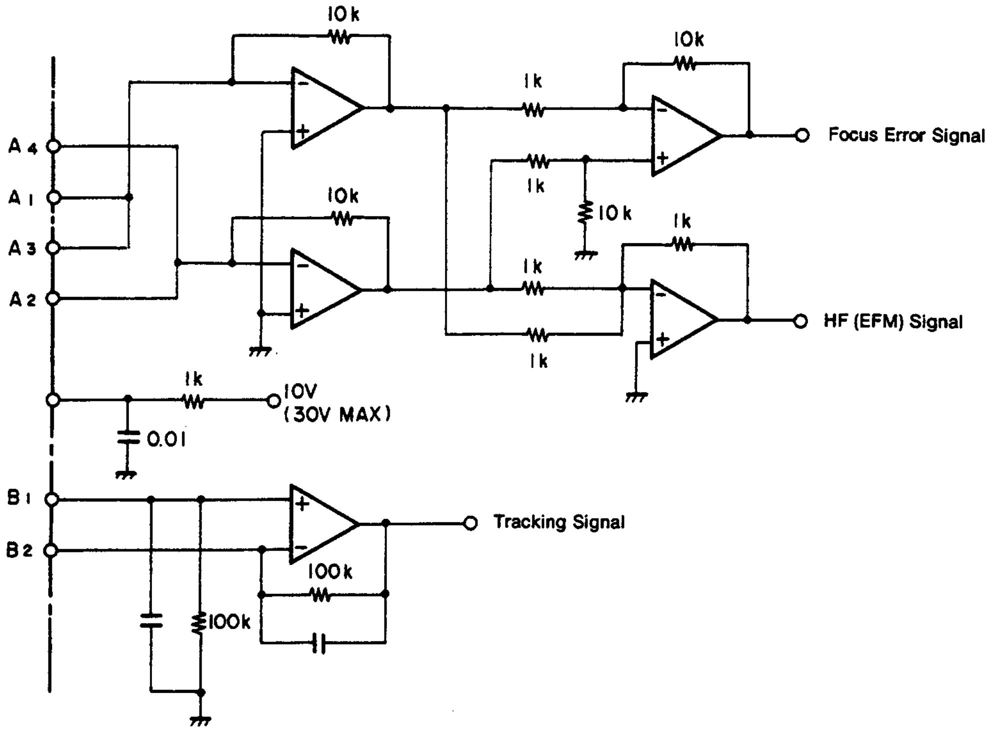

+ + ··· +
Disc side
T_8 T_7 ··· T_1

Tn	1	2	3	4	5	6	7	8
Item	C (GND)	LD	MD	VR	TR+	TR−	AF−	AF+

Laser Drive Basic Circuit Diagram


Pickup
MD
LD
1/35
+
2.2K
below 1%
150K
100P
47
below 1%
4.7K
5.6K
330
4558DM
(1/2)
2SB562B
HZ-482
0.01
220P
22
(1/2W)
below 1%
10/16
180
HZ-3C3
10/16
−5V
+5V

Measurement Circuit Diagram


10k
10k
1k
A4
A1
A3
A2
10k
1k
10k
1k
1k
1k
Focus Error Signal
HF (EFM) Signal
1k
10V
(30V MAX)
0.01
B1
B2
Tracking Signal
100k
100k

● Precautions in Use

Read the following carefully before handling.

1. **Laser control circuit**

   The light output of the laser diode (LD) is greatly affected by temperature, so a built-in monitor photodiode should be used in the LD to supplement the light output.

   In order to get rid of the dispersion of the monitor photodiode, the semiconductor resistor accompanying the pickup has been adjusted so that the mirror surface level of the HF signal becomes 250 mV when the measurement circuit of this manual and the basic laser drive circuit are used.

   When designing a new laser drive circuit, note that the life of the laser will be shortened when the mirror level of the HF signal becomes 275 mV with this measuring circuit.

2. **Wiring**

   Be sure to use the specified connectors for the wiring.

   Note that the eye pattern may deteriorate when there is a microprocessor or other digital noise source in the vicinity from the photodiode to the harness.

   Note that a poor connection related to the LD and actuator connector will cause deterioration of the laser, and so there should not be any looseness of connectors.

● Precautions in Handling

This mechanism has been precisely assembled and adjusted at a special factory. It should not be disassembled or adjusted without good reason. Pay attention to the following points related to handling.

1. General items

(1) Storage

Avoid storage in places with high temperatures and high humidity, and in places exposed to a lot of dust.

(2) Handling

The unit has been precisely adjusted and care should be taken so as not to expose the unit to shocks through dropping or careless handling.

2. Semiconductor laser (LD)

(1) Protection of the eyes from the laser

The output of the LD is via an objective lens and is a maximum of 400 μW, but reaches approximately $1.3 \times 10^4 W/cm_2$ in places where there is condensed light. After being condensed by the objective lens, the beam widens and so is all right at a distance of 30 cm or further, but during operation the LD should never be allowed to be viewed directly or through another lens or mirror since this is dangerous.

(2) Destruction by surge currents or static electricity

When a large current flows through the LD, even for a very short period, the strong light which the LD generates itself will advance the deterioration of the LD or destroy it.

Wire a switch into the LD drive circuit or provide another method of preventing the flow of surge currents. Also, when handled without care, the LD can be destroyed instantly by the application of static electricity from the body. Therefore, when handling the LD, be sure to ground your body and ground the measuring instruments, jigs, and tools. It is also desirable to use a grounding mat on the work bench and floor.

3. Lens actuator

(1) The actuator section uses a strong magnetic circuit, so that when magnetic bodies come too close, their characteristics are altered. Also be careful not to allow foreign matter to enter from the cover gap.

(2) Lens cleaning

Dust or dirt adhering to the objective lens will change the performance.

To clean, blow the dirt away with clean air from an air blower.

4. Handling

Be sure not to contact the lens when handling the LD.

Note that direct contact of the body or other objects with the circuit of the LD board will cause deterioration to occur, so sufficient care should be taken.

CD PLAYER SECTION

SERVICE POINTS

1. Parts replacement of the tray mechanism (Figs. 1 and 2)

(1) Removal of the tray

Open the tray and use a flat-bladed screwdriver to press the stopper portions of Fig. 1 (one each in the left and right locations) in the direction of the black arrow, then remove in the direction of the white arrow.

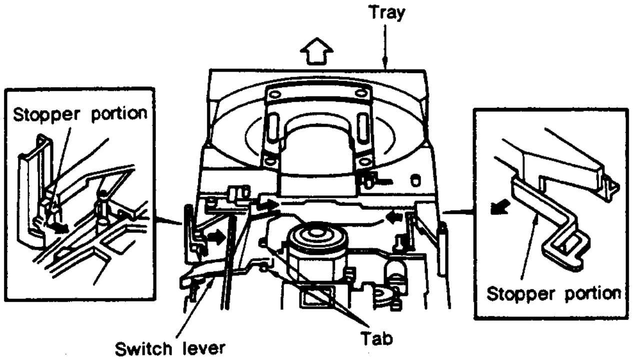

Tray
Stopper portion
Stopper portion
Switch lever
Tab

Fig. 1

(2) Mounting of the tray (Figs. 1, 2, and 3)

Rotate the switch lever in the direction of the arrow, set the latches of the tray as illustrated in Fig. 2, then align the rails of the tray in the grooves of the loading plate, and insert so that the pinch lever pins of the switch lever enter into the rack grooves. Push in the tray while pressing the stopper portion inside a little.

(Check that the latches are in the positions illustrated in Fig. 2.)

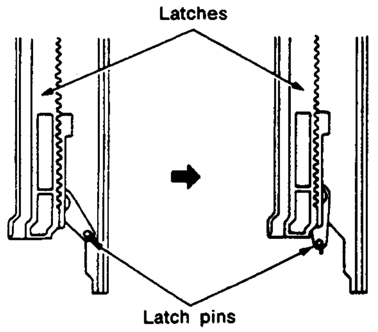

Latches
Latch pins

Fig. 2

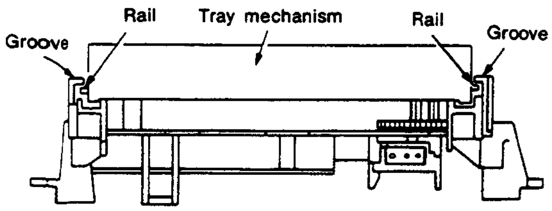

Rail
Tray mechanism
Rail
Groove
Groove

Fig. 3

(3) Replacement of the disc holder (Fig. 4)

With the tray removed, remove tabs Ⓓ and Ⓔ of the disc receptacle of Fig. 4, then lift up and off.

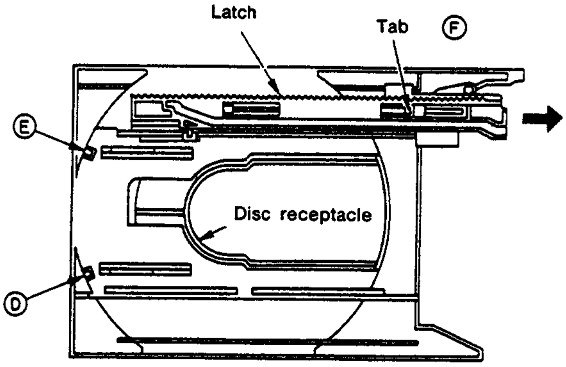

Latch
Tab Ⓕ
Ⓔ
Disc receptacle
Ⓓ

Fig. 4

(4) Replacement of the latches (Fig. 4)

Set the latches into the condition of Fig. 4, lift the latch tab (F) up about 1 mm with a flat-bladed screwdriver and remove the rack in the direction of the arrow.

(5) Removal of the loading motor and switches (Fig. 5)

Remove the belt from the loading motor, then remove the 3 tabs. Remove the fixed tabs from the various switches.

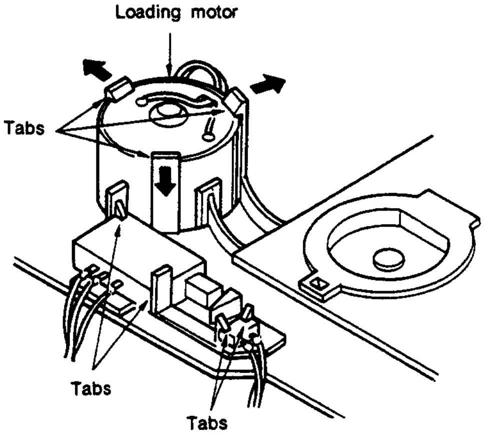

Loading motor
Tabs
Tabs
Tabs

Fig. 5

(6) Replacement of the belt

Replace the belt with the tray removed.

(7) Replacement of the clamper (Fig. 6)

Hook the elongated holes of the clamper onto the C arm, bend the elongated hole sections and attach.

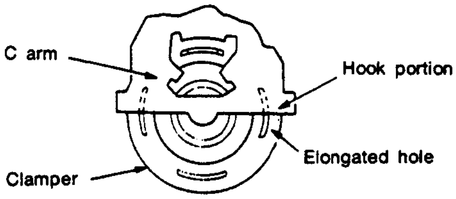

C arm
Hook portion
Elongated hole
Clamper

Fig. 6

(8) Replacement of the switch lever (Fig. 1)

Remove the tabs of the bottom side (in 2 locations).

2. Removal of the unit mechanism (Fig. 7)

After removing the loading mechanism, remove the tab of the bottom surface (in one location) as illustrated in Fig. 7.

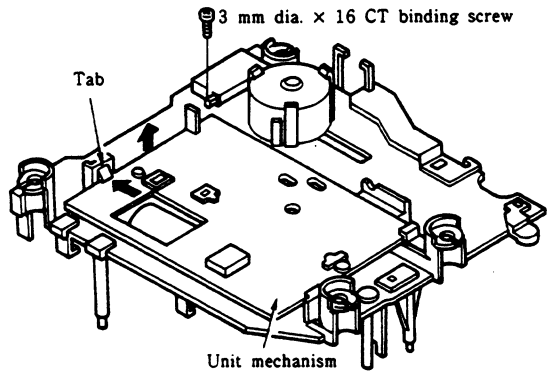
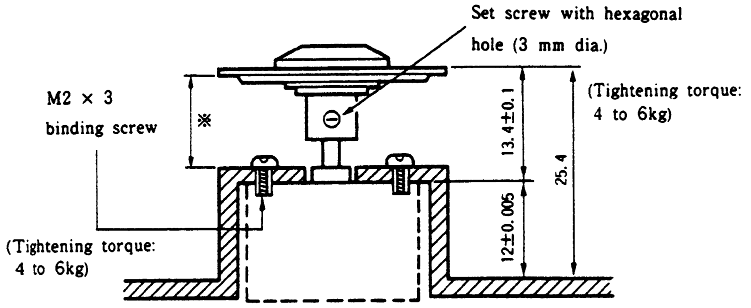

3 mm dia. × 16 CT binding screw
Tab
Unit mechanism

Fig. 7

(1) **To replace the DC motor (D2) and the turntable, follow the procedure below**

1) Pull the turntable (plastic) off vertically from the unit plate.

2) When fitting on the servicing turntable (metal), make a height adjustment. (Fig. 8)
Do not exert excessive force to the shaft of the DC motor (D2) at this time.


Set screw with hexagonal hole (3 mm dia.)
M2 × 3 binding screw
※
13.4±0.1
25.4
12±0.005
(Tightening torque: 4 to 6kg)
(Tightening torque: 4 to 6kg)

For the dimensions at parts marked "※", adjust the height using the turntable height JIG.
JIG No.: SGK-0030

Fig. 8

3) At the time of service replacement of the DC motor (D2), do not apply excessive force in direction B. When part C of the unit plate is misshapen, it will cause eye pattern deterioration. (Fig. 9)

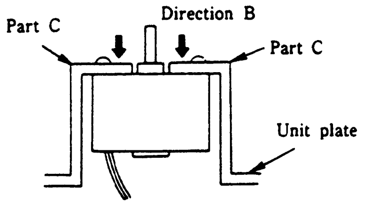

Direction B
Part C
Part C
Unit plate

Fig. 9

NOTE:

- **Motor replacement or turntable replacement method**
  Remove the pressure-fitted turntable, and remove the motor screws.
- **Do not reuse a turntable (plastic) that has been removed once.**

(2) **When disassembling and assembling the unit mechanism, assemble with wiring resembling that of Fig. 10**

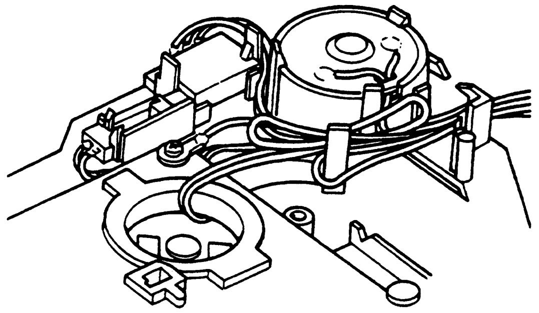


Fig. 10

3. Inspection of the objective lens (Fig. 11)

Handle so as not to get dirt or dust on the objective lens of the lens actuator section. Note that when used for a long period, dirt or dust may have adhered to the objective lens. Try cleaning the surface of the objective lens with a dry, clean cotton swab.

If the dirt still does not come off, moisten the cotton swab with a small amount of water and wipe. When doing this, be careful not to get water on any parts other than the lens.

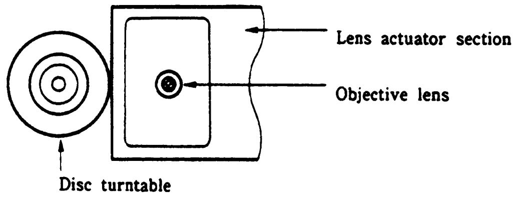

Lens actuator section
Objective lens
Disc turntable

Fig. 11

4. Inspection for laser breakdown

The laser is normally driven with a current of 30 to 80 mA. If this laser drive current value is measured at 120 mA or higher in the circuit, the laser may be thought to be faulty. (The current value is measured by taking the voltage (0.99 to 3.3 V) across both ends of R401, which is 33 ohms).

5. Precautions at time of servicing (Fig. 12)

(1) **Semiconductor laser**

The semiconductor laser is very susceptible to static electricity destruction and surge currents. Be careful never to touch the terminals of the semiconductor laser and the terminals of the flexible board with your hands or a tool.

As illustrated in Fig. 12, the current and light intensity characteristics increase abruptly once the threshold current value is exceeded.

Also note that this threshold current differs a little from laser to laser. In view of this, when replacing the unit mechanism or any work that involves setting the amount of light of the laser, be sure to turn the adjustment control VR401 fully in the counterclockwise direction, and then raise it to the specified value.

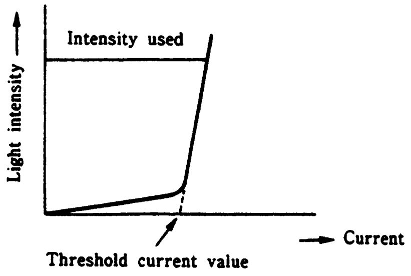


Fig. 12

(2) **Handing the unit mechanism (Fig. 13)**

When handling the pickup mechanism and the unit mechanism, use a ground ring such as the one illustrated in Fig. 13. (A ground ring can be constructed using ordinary lead wire.)

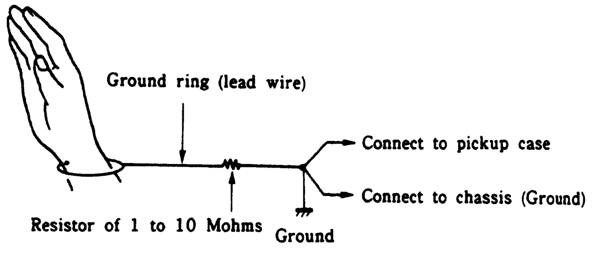

Ground ring (lead wire)
Connect to pickup case
Connect to chassis (Ground)
Resistor of 1 to 10 Mohms
Ground

Fig. 13

6. Inspection of the actuator (Fig. 14)

Check the resistance value of the actuator coil. It is normal if the values are as follows:

Focusing coil	30 ohms
Tracking coil	10 ohms

If the coils are open or shorted, the actuator may be thought to be broken. Also, a 1.5 V battery can be used to observe if the lens moves.

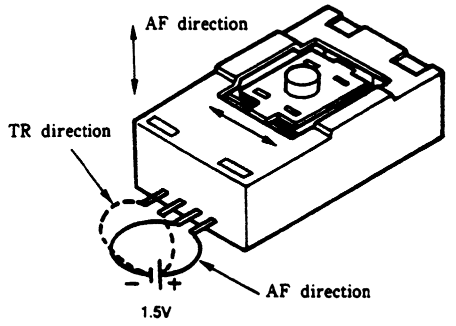

AF direction
TR direction
AF direction
1.5V

Fig. 14

CD PLAYER SECTION

ADJUSTMENT METHOD

The microprocessor contained in this unit incorporates a service program which allows a wide variety of service adjustments to be conducted easily by using the operation buttons.

1. Method of starting the service program

Switch on the AC power while simultaneously pressing the ▶ PLAY button and the ⏏ OPEN/CLOSE button of the CD unit (UCD-250). When all power has been switched on there will be a transition to the service program. At this time the display section of the CD unit (UCD-250) display tube will indicate "01".

NOTE: Once the service program starts the operation buttons cannot be used for normal operation.

2. Operation functions when the service program is operating

Operation button	Operation function	Description
⏏ OPEN/CLOSE	Opens and closes the disc holder.	● Opening and closing takes place when the rotation of the disc has stopped. ● Other operation buttons are performed when the opening and closing operation is completed.
■ STOP	Stops system operation.	● Track number display becomes 01 . ● Press when an adjustment has been completed or is redone.
▶ PLAY	Operates the focus servo and rotates the disc.	● Press at the time of the tracking offset adjustment. ● After the operation is completed, the track number display becomes 02 .
II PAUSE	Operates the focus servo, tracking servo, slide servo, and the spindle servo.	● When the play button has been pressed, the tracking servo and slide servo are operated. ● After the operation is completed the track number display becomes 03 .
Other buttons	Operation is not normal.	● Do not operate buttons other than the above. ● When a button is operated by mistake, immediately turn the power switch off.

NOTE: Do not use the remote control while the service program is operating.

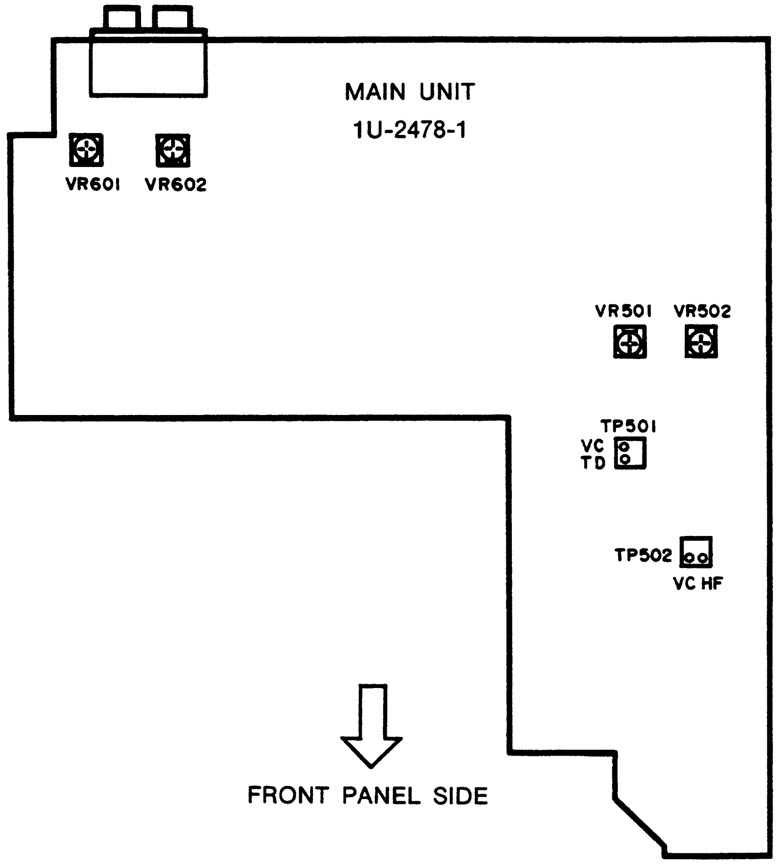
3. Adjustment method

(1) Measuring instruments required in the adjustment

① Dual-trace oscilloscope
② Oscilloscope

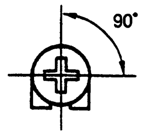
OUTLINE DIAGRAM OF ADJUSTMENT LOCATION

1U-2478-1 MAIN UNIT ASS'Y (Component Side)



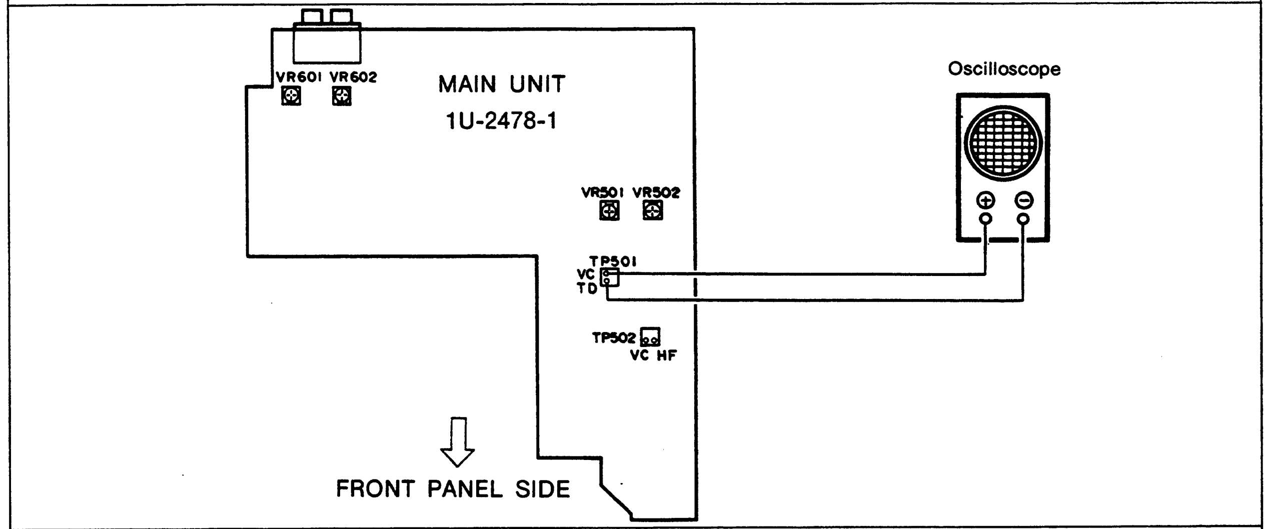
NOTE: VR601 and VR602 have been adjusted before shipping and do not require adjustment.

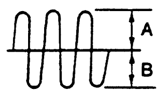
(2) Adjustment preparation

1.	Set the adjustment control (VR501, 502) to the position illustrated.	VR501 (T-OFFSET) VR502 (F-OFFSET) 
2.	Adjustment step	1. Tracking offset 2. Focus offset

(3) Tracking offset adjustment

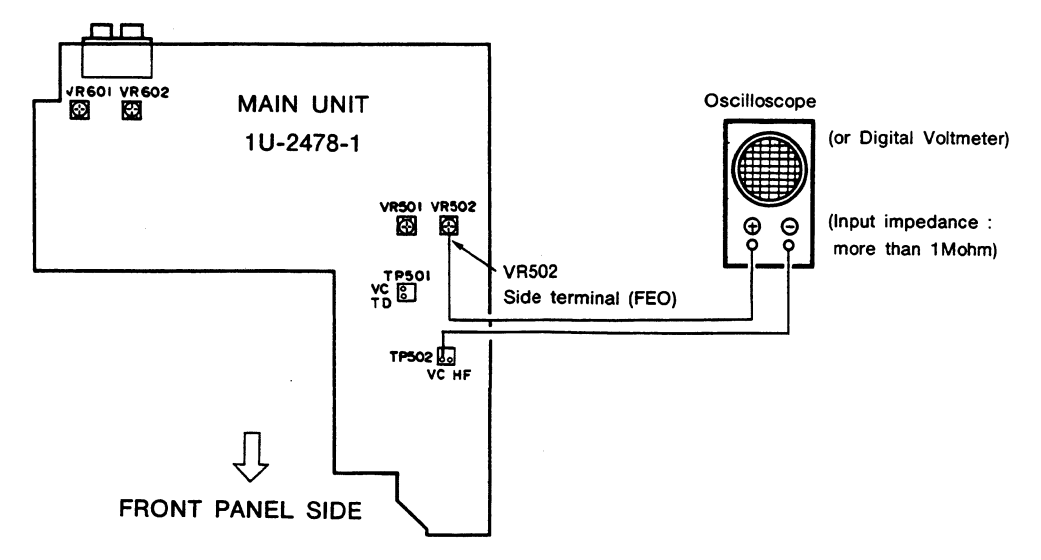
Wiring Diagram

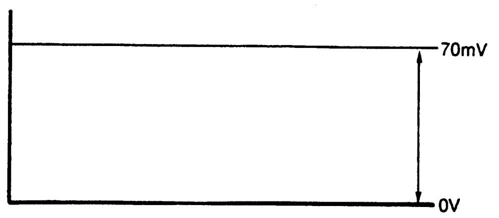

VR601 VR602
MAIN UNIT
1U-2478-1
VR501 VR502
TP501
VC
TD
TP502
VC HF
Oscilloscope
⊕ ⊖
FRONT PANEL SIDE

Oscilloscope (DC range)		Adjustment location	Check items	Adjustment procedure
V	H	(Control)	DC Voltmenter	
0.2V/ div	1~2ms div	VR501	 A = B	1. ⏏ OPEN/CLOSE Press the OPEN/CLOSE button and place an adjustment disc in the disc holder. 2. ⏏ OPEN/CLOSE Press the OPEN/CLOSE button again and close the disc holder. 3. ▶ PLAY Press the PLAY button and check that the display indicates "02". 4. Short circuit the (+) and (−) terminals of the oscilloscope and check the board wiring. 5. Adjust the VR501 "T-OFFSET" control and set the upper and lower amplitude of the waveform to be equal.

(4) Focus offset Adjustment

Wiring diagram


VR601 VR602
MAIN UNIT
1U-2478-1
VR501 VR502
TP501
VC
TD
TP502
VC HF
VR502
Side terminal (FEO)
Oscilloscope
(or Digital Voltmeter)
(Input impedance : more than 1Mohm)
⊕ ⊖
FRONT PANEL SIDE

Oscilloscope		Adjustment location	Check items
V	H	Control	Oscilloscope
50mV/div or 20mV/div	0.2 μ/div or 0.5 μ/div	VR502	

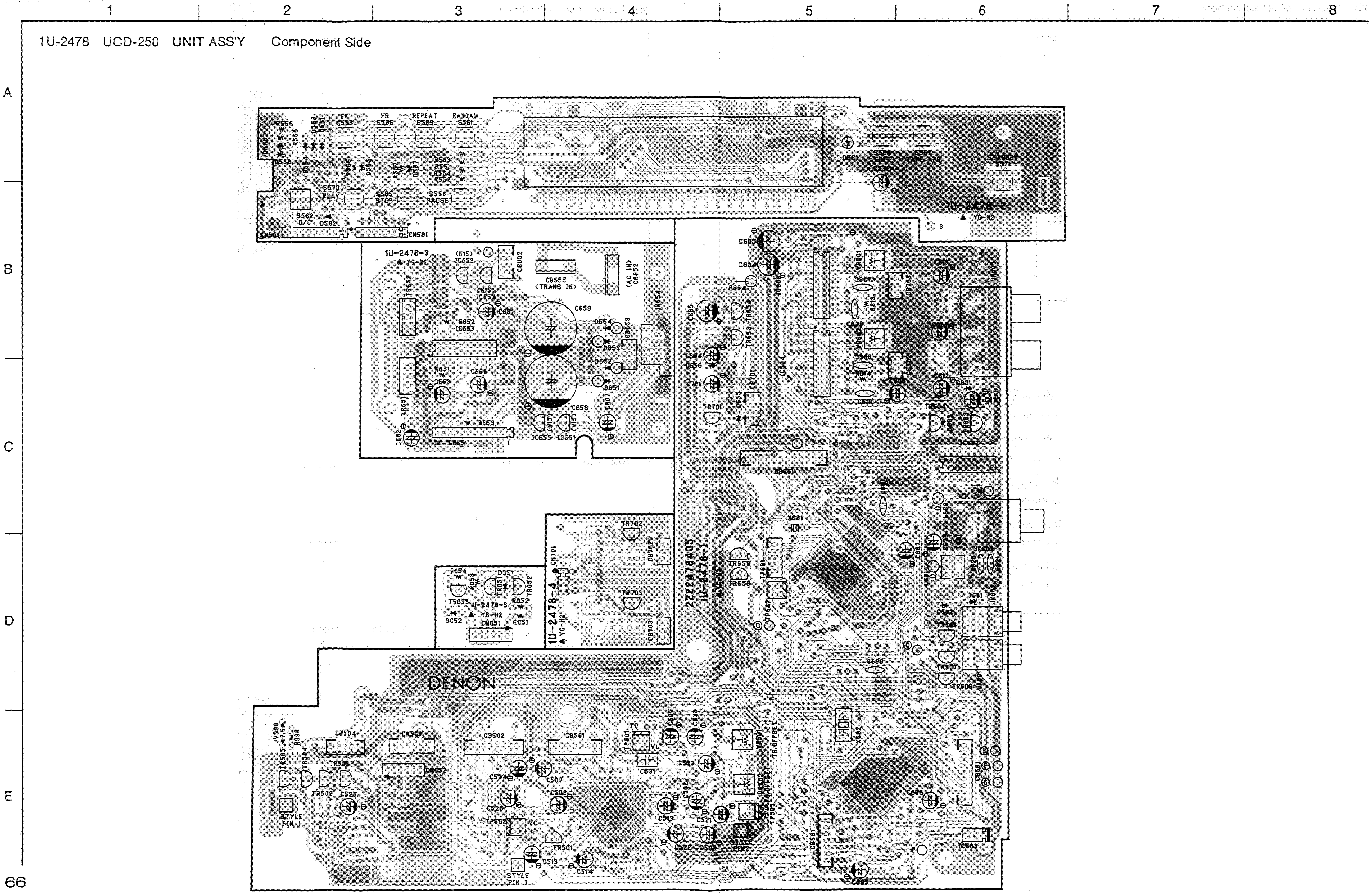
Adjustment Procedure

1. Press the ■ STOP button.
2. Adjust VR502 "F. OFFSET" and set the FEO voltage to +70 mV (±10 mV).

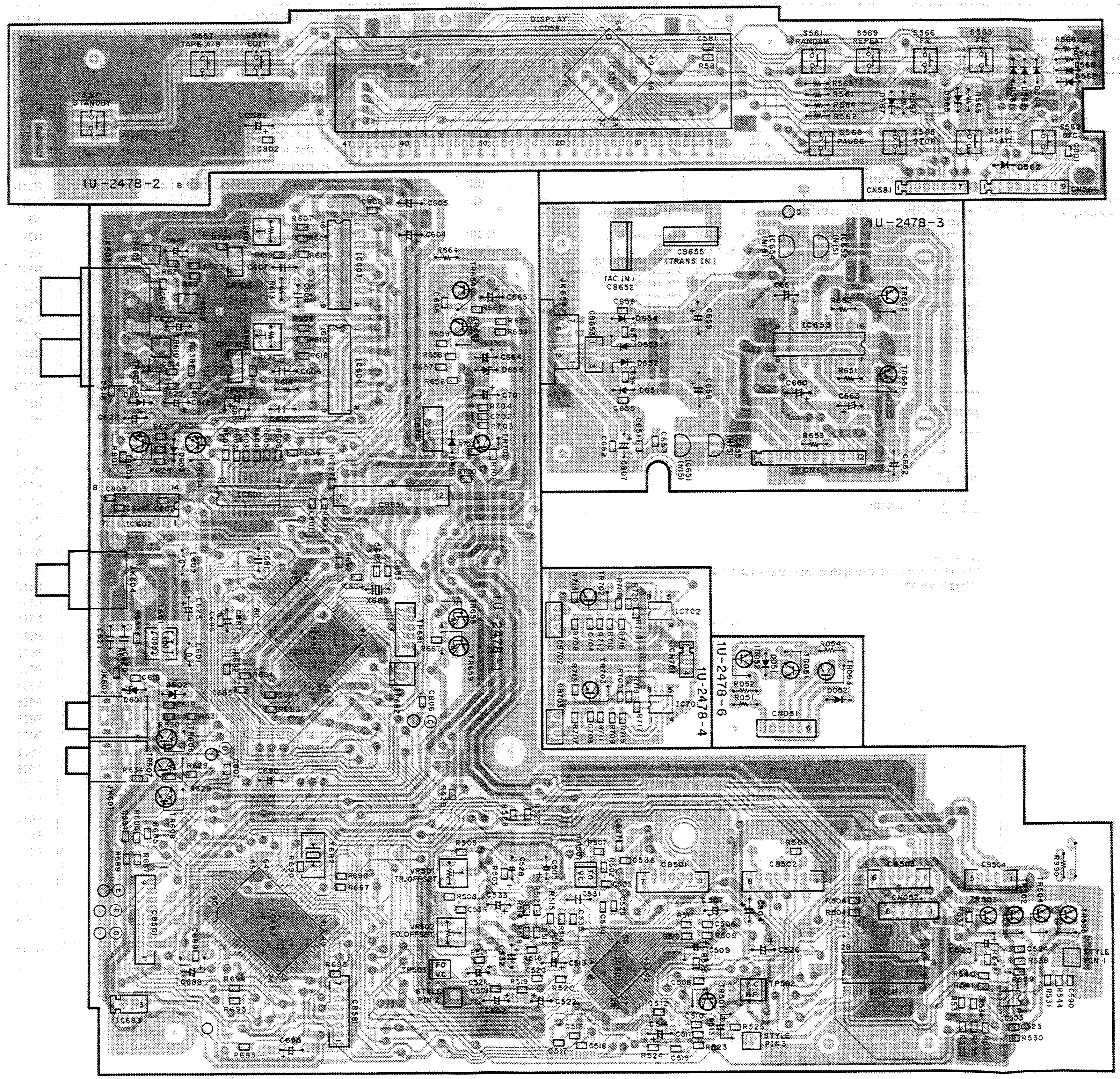
CD PLAYER SECTION

PRINTED WIRING BOARD

1U-2478 UCD-250 UNIT ASS'Y Component Side


1
2
3
4
5
6
7
8
A
B
C
D
E
FF S563
FR S565
REPEAT S559
RANDAM S561
S570 PLAY
S565 STOP
S568 PAUSE
S562 O/C
CN561
CN581
S564 EDIT
S567 TAPE A/B
STANDBY S571
1U-2478-2
YG-H2
1U-2478-3
YG-H2
CB655 (TRANS IN)
(AC IN) CB652
C659
C658
CN651
IC655
IC651
JK654
C605
C604
JK603
JK604
JK602
JK601
X681
X682
2222478405
1U-2478-1
YG-H2
1U-2478-4
YG-H2
CN701
TR702
TR703
CB702
CB703
1U-2478-6
YG-H2
CN051
TR051
TR052
TR053
DENON
CB504
CB503
CB502
CB501
CN052
STYLE PIN 1
STYLE PIN 3
STYLE PIN 2
TR.OFFSET
VR501
VR502
TP501
TP502
TP503
C531
CB581
CB561
IC683
C688
C695
JV990
R990

Pattern Side


1
2
3
4
5
6
7
8
A
B
C
D
E
DISPLAY
LCD581
S567 TAPE A/B
S564 EDIT
S57 STANDBY
S561 RANDAM
S569 REPEAT
S566 FR
S563 FF
S568 PAUSE
S565 STOP
S570 PLAY
S562
1U-2478-2
1U-2478-3
1U-2478-1
1U-2478-4
1U-2478-6
CB655 (TRANS IN)
CB652 (AC IN)
IC653
IC601
IC602
IC603
IC604
IC683
IC702
IC701
CN581
CN561
CN651
CN051
CB501
CB502
CB503
CB504
VR501 TR.OFFSET
VR502 FO.OFFSET
STYLE PIN 1
STYLE PIN 2
STYLE PIN 3
TP502
TP503
JK601
JK602
JK603
JK604
JK651
X601

CD PLAYER SECTION

NOTE ON PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W. Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

- **Resistors**

Ex.: RN 14K 2E 182 G FR

Type	Shape and performance	Power	Resistance	Allowable error	Others
RN	14K	2E	182	G	FR

Type	Power	Allowable error	Others
RD : Carbon Film	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metallic oxide Film	2H : 1/2W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

※ **Resistance**

1 8 2 ⇨ 1800 ohm = 1.8 kohm
2 — Indicates number of zeros after effective number
1 8 — 2-digit effective number

- Units: ohm

1 R 2 ⇨ 1.2 ohm
2 — 1-digit effective number.
1 R — 2-digit effective number, decimal point indicated by R.

- Units: ohm

※ **Capacity (electrolyte only)**

2 2 R ⇨ 2200 μF
R — Indicates number of zeros after effective number.
2 2 — 2-digit effective number.

- Units: μF

2 R 2 ⇨ 2.2 μF
2 — 1-digit effective number.
2 R — 2-digit effective number, decimal point indicated by R.

- Units: μF

- **Capacitors**

Ex.: CE 04W 1H 2R2 M BP

Type	Shape and performance	Dielectric strength	Capacity	Allowable error	Others
CE	04W	1H	2R2	M	BP

Type	Dielectric strength	Allowable error	Others
CE : Aluminum foil electrolyte	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolyte	1A : 10V	G : ±2%	BP : Non-polar type
CS : Tantalum electrolyte	1C : 16V	J : ±5%	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : ±20%	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : +80% −20%	U : UL part
CP : Oil	2A : 100V		C : CSA part
CM : Mica	2B : 125V	P : +100% −0%	W : UL-CSA type
CF : Metallized	2C : 160V		F : Lead wire forming
CH : Metallized	2D : 200V	C : ±0.25pF	
	2E : 250V	D : ±0.5pF	
	2H : 500V	= : Others	
	2J : 630V		

※ **Capacity (except electrolyte)**

2 R 2 ⇨ 2200pF = 2200 μF = 0.002 μF
2 — (More than 2) — Indicates number of zeros after effective number.
2 R — 2-digit effective number.

- Units: μF

2 2 1 ⇨ 220pF
1 — (0 or 1) — Indicates number of zeros after effective number.
2 2 — 2-digit effective number.

- Units: pF
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

1U-2478A P.W.B UNIT ASSY PARTS LIST

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC501	263 0821 000	IC HA12158	
IC502	263 0805 903	IC BA6296FP	
IC503	263 0615 902	IC BA15218F	
IC581	263 0533 000	IC LC7582	
IC601	262 1397 909	IC SM5840CS-L1	
IC602	262 1126 002	IC PC74HC00P	
IC603	262 1409 004	IC PCM61P-L	
IC604	262 1409 004	IC PCM61P-L	
IC651	268 0073 905	IC ICP-N15	IC Protector 15 V
IC652	268 0073 905	IC ICP-N15	IC Protector 15 V
IC653	263 0693 005	IC M5290P	
IC654	268 0073 905	IC ICP-N15	IC Protector 15 V
IC655	268 0073 905	IC ICP-N15	IC Protector 15 V
IC681	262 1514 009	IC CXD2500AQ	
IC682	262 1625 406	IC μPD75517GF-150-3B9	μ com
IC683	262 0678 001	IC MN1280-S	
TR501	271 0102 937	Transister 2SA1015(GR/Y)	
TR502	274 0144 907	Transister :BC368	
TR503	272 0101 902	Transister :BC369	
TR504	274 0144 907	Transister :BC368	
TR505	272 0101 902	Transister :BC369	
TR601	269 0066 902	Transister DTC323TK	Built in Resistor
TR602	269 0066 902	Transister DTC323TK	Built in Resistor
TR603	269 0020 906	Transister DTC114ES	Built in Resistor
TR604	269 0046 906	Transister DTA114ES	Built in Resistor
TR606	269 0040 902	Transister DTC144ES	Built in Resistor
TR607	269 0040 902	Transister DTC144ES	Built in Resistor
TR608	269 0040 902	Transister DTC144ES	Built in Resistor
TR609	269 0066 902	Transister DTC323TK	Built in Resistor
TR610	269 0066 902	Transister DTC323TK	Built in Resistor
TR651	274 0415 003	Transister :BD935F	
TR652	272 0102 008	Transister :BD936F	
TR653	274 0144 907	Transister :BC368	
TR654	273 0222 907	Transister 2SC2458(Y/GR)	
TR658	269 0020 906	Transister DTC114ES	Built in Resistor
TR659	269 0020 906	Transister DTC114ES	Built in Resistor
D561	276 0432 903	Diode 1SS270A	
D562	276 0432 903	Diode 1SS270A	
D563	276 0432 903	Diode 1SS270A	
D564	276 0432 903	Diode 1SS270A	
D565	276 0462 902	Zener Diode HZS6B-1	6 V
D566	276 0462 902	Zener Diode HZS6B-1	6 V
D567	276 0462 902	Zener Diode HZS6B-1	6 V
D568	276 0462 902	Zener Diode HZS6B-1	6 V
D581	393 9470 009	LED	LED
D601	276 0462 902	Zener Diode HZS6B-1	6 V
D602	276 0462 902	Zener Diode HZS6B-1	6 V
D603	276 0432 903	Diode 1SS270A	
D651	276 0553 905	Diode 1SR35-200A	
D652	276 0553 905	Diode 1SR35-200A	
D653	276 0553 905	Diode 1SR35-200A	
D654	276 0553 905	Diode 1SR35-200A	
D655	276 0432 903	Diode 1SS270A	
D656	276 0462 915	Zener Diode HZS6B-2	6 V
D801	276 0503 900	Diode 1SS198	
	393 4141 003	LCD 8233 JP	LCD
RESISTORS GROUP (Not included Carbon Film ±5%,1/4W Type. Refer to the Scematic Diagram for those Parts.)			
R008	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R055	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R056	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R501	247 0004 922	Chip Carbon 47 ohm 1/10W	RM73B--470J
R502	247 0011 902	Chip Carbon 33k ohm 1/10W	RM73B--333J
R503	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R504	247 0010 961	Chip Carbon 22k ohm 1/10W	RM73B--223J
R505	247 0008 931	Chip Carbon 2.4kohm 1/10W	RM73B--242J
R506	247 0011 902	Chip Carbon 33k ohm 1/10W	RM73B--333J
R507	247 0010 987	Chip Carbon 27k ohm 1/10W	RM73B--273J
R508	247 0008 931	Chip Carbon 2.4kohm 1/10W	RM73B--242J
R509	247 0005 976	Chip Carbon 200 ohm 1/10W	RM73B--201J
R510	247 0008 902	Chip Carbon 1.8kohm 1/10W	RM73B--182J
R511	247 0009 969	Chip Carbon 8.2kohm 1/10W	RM73B--822J
R512	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R513	247 0010 929	Chip Carbon 15k ohm 1/10W	RM73B--153J
R514	247 0009 972	Chip Carbon 9.1kohm 1/10W	RM73B--912J
R515	247 0012 901	Chip Carbon 82k ohm 1/10W	RM73B--823J
R516	247 0010 903	Chip Carbon 12k ohm 1/10W	RM73B--123J
R517	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R518	247 0010 929	Chip Carbon 15k ohm 1/10W	RM73B--153J
R519	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R520	247 0010 929	Chip Carbon 15k ohm 1/10W	RM73B--153J
R521	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R522	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
R523	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R524	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R525	247 0003 949	Chip Carbon 22 ohm 1/10W	RM73B--220J
R526	247 0010 903	Chip Carbon 12k ohm 1/10W	RM73B--123J
R527	247 1009 984	Chip Carbon 10 k ohm 1/8W	RM73B2B103J
R528	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R529	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R530	247 0012 914	Chip Carbon 91k ohm 1/10W	RM73B--913J
R531	247 0005 989	Chip Carbon 220 ohm 1/10W	RM73B--221J
R532	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R533	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
R534	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R535	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R536	247 0009 943	Chip Carbon 6.8kohm 1/10W	RM73B--682J
R537	247 0010 961	Chip Carbon 22k ohm 1/10W	RM73B--223J
R538	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R539	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R540	247 0009 943	Chip Carbon 6.8kohm 1/10W	RM73B--682J
R541	247 0009 956	Chip Carbon 7.5kohm 1/10W	RM73B--752J
R542	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R544	247 0003 949	Chip Carbon 22 ohm 1/10W	RM73B--220J
R581	247 0011 957	Chip Carbon 51k ohm 1/10W	RM73B--513J
R601	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R602	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R603	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R604	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R605	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R606	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R607	247 0012 998	Chip Carbon 200kohm 1/10W	RM73B--204J
R608	247 0012 998	Chip Carbon 200kohm 1/10W	RM73B--204J
R609	247 0013 984	Chip Carbon 470kohm 1/10W	RM73B--474J
R610	247 0013 984	Chip Carbon 470kohm 1/10W	RM73B--474J
R611	247 0014 967	Chip Carbon 1 M ohm 1/10W	RM73B--105J
R612	247 0014 967	Chip Carbon 1 M ohm 1/10W	RM73B--105J
R615	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R616	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R621	247 0007 903	Chip Carbon 680 ohm 1/10W	RM73B--681J
R622	247 0007 903	Chip Carbon 680 ohm 1/10W	RM73B--681J
R623	247 0010 990	Chip Carbon 30k ohm 1/10W	RM73B--303J
R624	247 0010 990	Chip Carbon 30k ohm 1/10W	RM73B--303J
R625	247 0004 993	Chip Carbon 91 ohm 1/10W	RM73B--910J
R626	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R627	247 0012 998	Chip Carbon 200kohm 1/10W	RM73B--204J
R628	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R629	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R630	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R631	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J

Ref. No.	Part No.	Part Name	Remarks
R633	247 0004 977	Chip Carbon 75 ohm 1/10W	RM73B--750J
R634	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R635	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R636	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R637	247 0005 963	Chip Carbon 180 ohm 1/10W	RM73B--181J
R638	247 0005 963	Chip Carbon 180 ohm 1/10W	RM73B--181J
R639	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R654	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R655	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R656	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R657	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R658	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R659	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R660	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
⚠R664	244 2051 987	Metal Oxide 4.7 ohm 1W(NB)	RS14B3A4R7JNBS(S)
R667	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R681	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
R682	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R683	247 0009 943	Chip Carbon 6.8kohm 1/10W	RM73B--682J
R684	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J
R685	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J
R686	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R687	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R689	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R690	247 0014 967	Chip Carbon 1 M ohm 1/10W	RM73B--105J
R692	247 0008 915	Chip Carbon 2 k ohm 1/10W	RM73B--202J
R693	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R694	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R695	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R696	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R698	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R725	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R726	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R727	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R801	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R802	247 0012 927	Chip Carbon 100kohm 1/10W	RM73B--104J
VR501	211 6087 931	Semi Fixed Resistor 4.7k ohm	V06PB472
VR502	211 6087 928	Semi Fixed Resistor 100k ohm	V06PB104
VR601	211 6087 928	Semi Fixed Resistor 100k ohm	V06PB104
VR602	211 6087 928	Semi Fixed Resistor 100k ohm	V06PB104
CAPACITORS GROUP			
C501	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C502	254 4250 929	Electrolytic 100µF/6.3 V	CE04W0J101M
C503	257 0008 983	Chip Ceramic 1000 pF/50 V	CK73B1H102K
C504	254 4260 935	Electrolytic 0.47µF/50 V	CE04W1HR47M
C505	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C506	257 0004 987	Chip Ceramic 120 pF/50 V	CC73SL1H121J
C507	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C508	257 0009 937	Chip Ceramic 2700 pF/50 V	CK73B1H272K
C509	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C510	257 0011 967	Chip Ceramic 0.033µF/25 V	CK73B1E333K
C511	257 0009 924	Chip Ceramic 2200 pF/50 V	CK73B1H222K
C512	257 0010 926	Chip Ceramic 0.015µF/50 V	CK73B1H153K
C513	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C514	254 4260 935	Electrolytic 0.47µF/50 V	CE04W1HR47M
C515	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C516	257 0008 983	Chip Ceramic 1000 pF/50 V	CK73B1H102K
C517	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C518	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C519	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C520	257 0009 979	Chip Ceramic 5600 pF/50 V	CK73B1H562K
C521	254 4260 919	Electrolytic 0.22µF/50 V	CE04W1HR22M
C522	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C523	257 0009 979	Chip Ceramic 5600 pF/50 V	CK73B1H562K
C524	257 0010 942	Chip Ceramic 0.022µF/50 V	CK73B1H223K
C525	254 4260 964	Electrolytic 3.3µF/50 V	CE04D1H3R3M
C525	254 4252 930	Electrolytic 100µF/10 V	CE04W1A101M
C526	254 4250 929	Electrolytic 100µF/6.3 V	CE04W0J101M
C527	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C528	254 4254 938	Electrolytic 47µF/16 V	CE04W1C470M
C529	257 1011 995	Chip Ceramic 0.056µF/50 V	CK73B1H563K
C530	257 0010 955	Chip Ceramic 0.027µF/50 V	CK73B1H273K
C531	256 1034 995	Metalized 0.15µF/50 V	CF93A1H154J
C532	254 4254 912	Electrolytic 22µF/16 V	CE04W1C220M
C533	254 4260 919	Electrolytic 0.22µF/50 V	CE04W1HR22M
C534	257 0008 983	Chip Ceramic 0.22µF/50 V	CE04W1HR22M
C535	257 0006 901	Chip Ceramic 390 pF/50 V	CC73SL1H391J
C536	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C581	257 0006 969	Chip Ceramic 680 pF/50 V	CC73SL1H681J
C582	254 4193 947	Electrolytic 100µF/16 V	CE04W1C101M(SRA)
C590	257 0014 935	Chip Ceramic 0.1µF/25 V	CK73F1E104K
C601	257 1009 923	Chip Ceramic 330 pF/50 V	CK73B1H331K
C602	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C604	254 4254 930	Electrolytic 100µF/10 V	CE04W1A101M
C605	254 4254 930	Electrolytic 100µF/10 V	CE04W1A101M
C606	255 4235 963	Plastic Film 0.0056µF/100V	CQ93P2A562J(NH)
C607	255 4235 963	Plastic Film 0.0056µF/100V	CQ93P2A562J(NH)
C609	253 4456 908	Ceramic 680 pF/50 V	CC45SL1H681J
C610	253 4456 908	Ceramic 680 pF/50 V	CC45SL1H681J
C612	254 4313 918	Electrolytic 10µF/50 V	CE04W1H100M(ASF)
C613	254 4313 918	Electrolytic 10µF/50 V	CE04W1H100M(ASF)
C614	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C615	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C616	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C618	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C619	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C620	253 1146 907	Ceramic 0.01µF/50 V	CK45F1H103Z
C621	253 4452 902	Ceramic 470 pF/50 V	CC45SL1H471J
C623	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C625	254 4254 925	Electrolytic 33µF/16 V	CE04W1C330M
C626	254 0004 961	Chip Ceramic 100 pF/50 V	CC73SL1H101J
C627	254 4254 954	Electrolytic 220µF/16 V	CE04W1C221M
C651	257 1011 908	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C652	257 1011 908	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C653	257 1011 908	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C654	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C655	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C656	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C658	254 4255 704	Electrolytic 3300µF/16 V	CE04W1C332MC
C659	254 4255 704	Electrolytic 3300µF/16 V	CE04W1C332MC
C660	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C661	254 4260 964	Electrolytic 3.3µF/50 V	CE04W1H3R3M
C662	254 4254 954	Electrolytic 220µF/16 V	CE04W1C221M
C663	254 4254 954	Electrolytic 220µF/16 V	CE04W1C221M
C665	254 4254 941	Electrolytic 100µF/16 V	CE04W1C101M
C666	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C681	253 1146 907	Ceramic 0.01µF/50 V	CK45F1H103Z
C682	257 0001 951	Chip Ceramic 3 pF/50 V	CC73SL1H3R0C
C683	257 0001 977	Chip Ceramic 5 pF/50 V	CC73SL1H5R0C
C684	257 1011 982	Chip Ceramic 0.047µF/50 V	CK73B1H473K
C685	257 0009 908	Chip Ceramic 1500 pF/50 V	CK73B1H152K
C686	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C687	254 4250 932	Electrolytic 220µF/6.3 V	CE04W0J221M
C688	254 4250 929	Electrolytic 100µF/6.3 V	CE04W0J101M
C689	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C690	253 1146 907	Ceramic 0.01µF/50 V	CK45F1H103Z
C695	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C801	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C803	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C804	257 0004 961	Chip Ceramic 100 pF/50 V	CC73SL1H101J
C805	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C807	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C807	257 0010 942	Chip Ceramic 0.022µF/50 V	CK73B1H223K
C808	257 0010 942	Chip Ceramic 0.022µF/50 V	CK73B1H223K

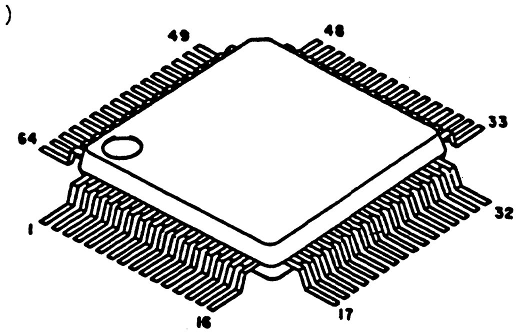
OTHERS GROUP				Q'ty
	—	(P.W.Board)		1
L601	235 0049 900	Beads Inductor Tape		1
L602	235 0049 900	Beads Inductor Tape		1
	212 5604 910	Tact Switch		11
	449 0057 009	LCD Holder		1
	417 0307 008	Heat Sink		1
	470 0012 022	Pan Screw 3×12 with SW.W		2
X681	399 0112 005	Crystal (16.934MHz)		1
X682	399 9018 003	Ceramic Vibrator	CST 4.00MGW	1
T601	231 8063 009	Pulse Trans		1
JK601	204 8421 005	Mini Jack		1
JK602	204 8421 005	Mini Jack		1
JK603	204 8413 000	2 P Pin Jack(C-GND)		1
JK604	204 8366 005	1 P Pin Jack		1
JK654	204 2429 003	7 P System Socket		1
CN581	204 2513 029	7 P KR-DA Conn. Cord		1
CN561	204 2561 000	9 P KR-DA Conn. Cord		1
CN651	204 6286 035	12 P PH-SAN Conn. Cord		1
CB501	205 0343 074	7 P Conn. Base(KR-PH)		1
CB502	205 0343 087	8 P Conn. Base(KR-PH)		1
CB503	205 0343 061	6 P Conn. Base(KR-PH)		1
CB504	205 0343 058	5 P Conn. Base(KR-PH)		1
CB561	205 0343 090	9 P Conn. Base(KR-PH)		1
CB581	205 0343 074	7 P Conn. Base(KR-PH)		1
CB651	205 0375 026	12 P Conn. Base(KR-PH)		1
TP501	205 0133 022	2 P NH Conn. Base		1
TP502	205 0133 022	2 P NH Conn. Base		1
TP503	205 0133 022	2 P NH Conn. Base		1
	205 0452 004	Style Pin		2
	203 0374 021	1 P SIN Conn. Assy		1
	203 0340 068	1 P Contact Assy		1
CB653	205 0233 032	3 P EH Conn. Base		1
CB655	205 0581 001	2 P VH Conn. Base		1
CB655	205 0624 007	:2 P AC Conn. Base		1

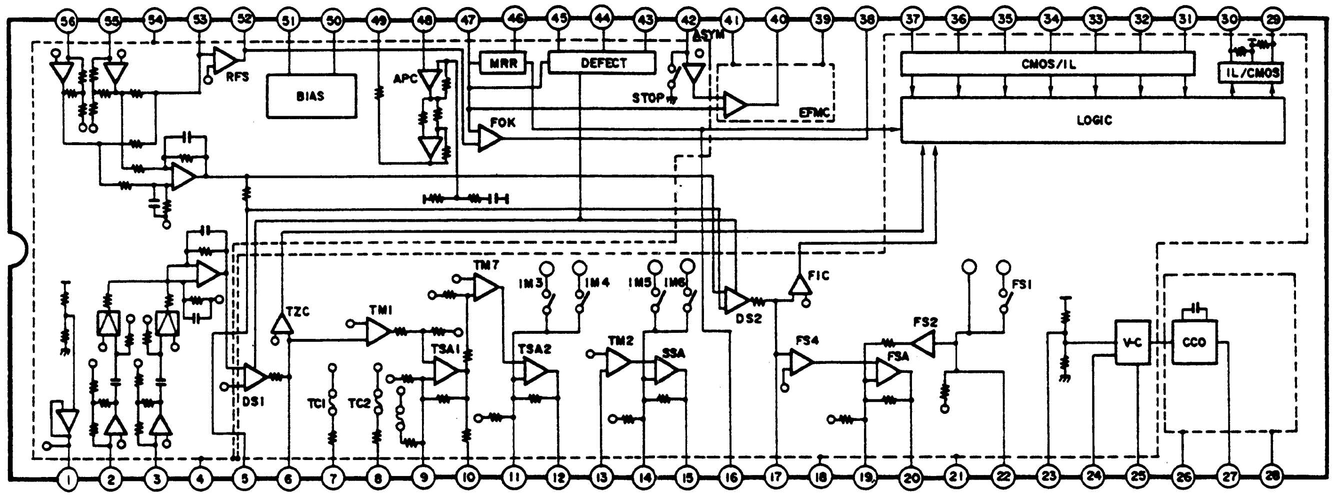
CD PLAYER SECTION

SEMICONDUCTORS

● IC's

HA12158 (IC501)


49
48
64
33
32
1
16
17

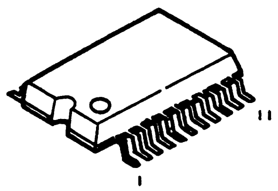

RFS
BIAS
APC
MRR
DEFECT
ASYM
STOP
EFMC
CMOS/IL
IL/CMOS
LOGIC
FOK
TM7
IM3
IM4
IM5
IM6
FIC
DS2
FS4
FS2
FS1
FSA
TZC
TM1
TSA1
TSA2
TM2
SSA
DS1
TC1
TC2
V-C
CCO

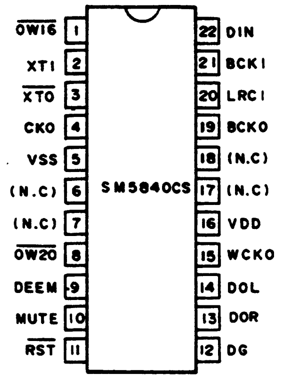
● Pin function table

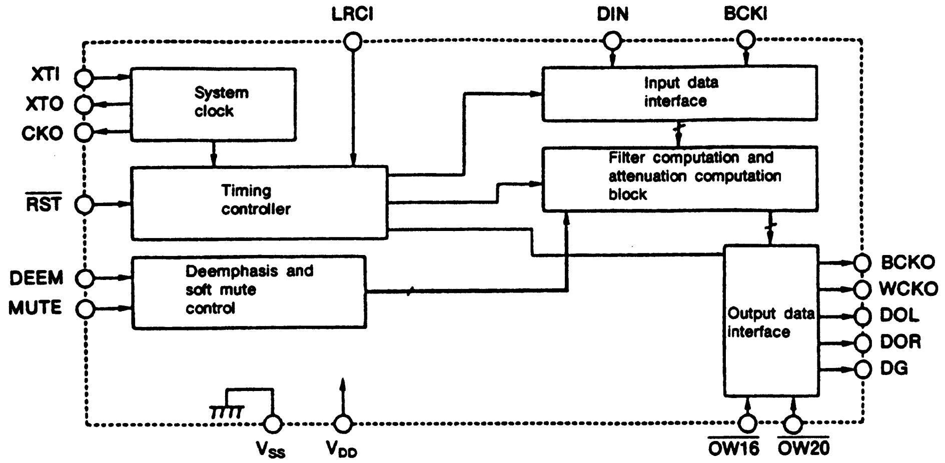
Pin No.	Symbol	I/O	Function
1	TG2	I	TG2 switch
2	TS1⊖	I	TSA1 ⊖ input
3	TS10	O	TSA1 output
4	TS2⊖	I	TSA2 ⊖ input
5	TS20	O	TSA2 output
6	TM2	I	TM2 input
7	SS⊖	I	SSA ⊖ input
8	SSO	O	SSA output
9	MIRR	O	Mirror comparator output
10	FE	I/O	Focus error signal output, FS4 input
11	SG	GND	Servo block ground
12	FS⊖	I	SSA ⊖ input
13	FSO	O	FSA input
14	SVCC	Vcc	Servo block Vcc
15	FUD	O	Focus up/down voltage output
16	VCR	I/O	VCO reference voltage
17	PDIN	I	VCO control voltage input
18	FRA	O	VCO free-run frequency setting
19	VVcc	Vcc	VCO Vcc
20	VCO	O	VCO output
21	VGND	GND	VCO ground
22	COUT	O	Track count signal output
23	SENS	O	FZC and TZC signal output
24	XRST	I	Reset signal output
25	DIRC	I	Direct control signal output
26	XLT	I	Data transfer signal input
27	DATA	I	Data signal input
28	CLK	I	Data sync clock input

Pin No.	Symbol	I/O	Function
29	LMSW	I	Limit switch input
30	LDSW	I	Laser switch input
31	FOK	O	FOK comparator output
32	GEFM	GND	EFM comparator ground
33	EFMC	O	EFM comparator output
34	VEFM	Vcc	EFM comparator Vcc
35	DSLC	I	Data slice level control input
36	DFIN	I	Defect comparator input
37	DFO	O	Defect signal output
38	DFH	O	Defect hold signal output
39	MIRH	O	Error hold signal output
40	EFMI	I	EFM signal output
41	MD	I	APC amplifier input
42	LD	O	APC amplifier output
43	BYPS	O	Capacitor connection pin for ripple filter
44	ISET	O	Reference current setting
45	RFO	O	RFS output
46	RF⊖	I	RFS ⊖ input
47	PVcc	Vcc	Pre-block Vcc
48	RF1	I	RF1 (I/V conversion block) input
49	RF2	I	RF2 (I/V conversion block) input
50	VREF	O	Reference voltage output
51	TR1	I	TR1 (1/V conversion amplifier) input
52	TR2	I	TR2 (1/V conversion amplifier) input
53	PG	GND	Preamplifier block ground
54	FH	O	Focus error hold signal output
55	TE	I/O	Track error signal output, TMI input
56	TG1	I	TG1 switch

SM5840CS (IC601)




$\overline{\text{OW16}}$ 1
XTI 2
$\overline{\text{XTO}}$ 3
CKO 4
VSS 5
(N.C) 6
(N.C) 7
$\overline{\text{OW20}}$ 8
DEEM 9
MUTE 10
$\overline{\text{RST}}$ 11
SM5840CS
22 DIN
21 BCKI
20 LRCI
19 BCKO
18 (N.C)
17 (N.C)
16 VDD
15 WCKO
14 DOL
13 DOR
12 DG

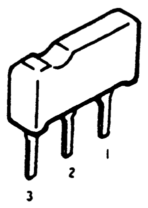

LRCI
DIN
BCKI
XTI
XTO
CKO
$\overline{\text{RST}}$
DEEM
MUTE
System clock
Input data interface
Filter computation and attenuation computation block
Timing controller
Deemphasis and soft mute control
Output data interface
BCKO
WCKO
DOL
DOR
DG
V_{SS}
V_{DD}
$\overline{\text{OW16}}$
$\overline{\text{OW20}}$

● Pin Description

<table>
<tr><th>Pin number
DIP</th><th>Pin name</th><th>i/o</th><th colspan="5">Function</th></tr>
<tr><td rowspan="4">1</td><td rowspan="4">$\overline{\text{OW16}}$</td><td rowspan="4">ip</td><td rowspan="4">Selection pin 1 for number of output bits
(NOTE) NS-ON : Noise shaper on
NS-OFF : Noise shaper off</td><td colspan="2" rowspan="2">Setting</td><td colspan="2">$\overline{\text{OW20}}$</td></tr>
<tr><td>H</td><td>L</td></tr>
<tr><td rowspan="2">$\overline{\text{OW16}}$</td><td>H</td><td>18bit output (NS-ON)</td><td>20bit output (NS-ON)</td></tr>
<tr><td>L</td><td>16bit output (NS-ON)</td><td>18bit output (NS-ON)</td></tr>
<tr><td>2</td><td>XTI</td><td>i</td><td colspan="5">Oscillator input pin</td></tr>
<tr><td>3</td><td>XTO</td><td>o</td><td colspan="5">Oscillator input pin</td></tr>
<tr><td>4</td><td>CKO</td><td>o</td><td colspan="5">Oscillator output clock (Frequency is the same as XTI)</td></tr>
<tr><td>5</td><td>Vss</td><td>—</td><td colspan="5">Ground pin</td></tr>
<tr><td></td><td>(N.C)</td><td></td><td colspan="5"></td></tr>
<tr><td></td><td>(N.C)</td><td></td><td colspan="5"></td></tr>
<tr><td>6</td><td>$\overline{\text{OW20}}$</td><td>ip</td><td>Selection pin 2 for number of output bits
(NOTE) See the column of $\overline{\text{OW16}}$.</td><td colspan="4">(When $\overline{\text{OW20}}$ is low level : 18 bits or 20 bits)
(When $\overline{\text{OW20}}$ is high level : 18 bits or 16 bits)</td></tr>
<tr><td>7</td><td>DEEM</td><td>ip</td><td>Deemphasis signal input</td><td colspan="4">(When DEM is low level : Deemphasis is off)
(When DEM is high level : Deemphasis is on)</td></tr>
<tr><td>8</td><td>MUTE</td><td>ip</td><td>Mute signal input</td><td colspan="4">(When MUTE is low level : Soft mute is off)
(When MUTE is high level : Soft mute is on)</td></tr>
<tr><td>9</td><td>$\overline{\text{RST}}$</td><td>ip</td><td colspan="5">System reset (Initialization)</td></tr>
<tr><td>10</td><td>DG</td><td>o</td><td colspan="5">Deglitch output</td></tr>
<tr><td>11</td><td>DOR</td><td>o</td><td colspan="5">Right channel data output</td></tr>
<tr><td>12</td><td>DOL</td><td>o</td><td colspan="5">Left channel data output</td></tr>
<tr><td>13</td><td>WCKO</td><td>o</td><td colspan="5">Output word clock</td></tr>
<tr><td>14</td><td>V_{DD}</td><td>—</td><td colspan="5">Supply pin (5 V : Standard)</td></tr>
<tr><td></td><td>(N.C)</td><td></td><td colspan="5"></td></tr>
<tr><td></td><td>(N.C)</td><td></td><td colspan="5"></td></tr>
<tr><td>15</td><td>BCKO</td><td>o</td><td colspan="5">Output bit clock</td></tr>
<tr><td>16</td><td>LRCI</td><td>ip</td><td colspan="5">Clock of the input data sample rate (fs)</td></tr>
<tr><td>17</td><td>BCKI</td><td>ip</td><td colspan="5">Input bit clock</td></tr>
<tr><td>18</td><td>DIN</td><td>ip</td><td colspan="5">Input data</td></tr>
</table>

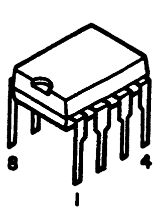
i : Input pin ip : Input pin with pull-up resistor o : Output pin

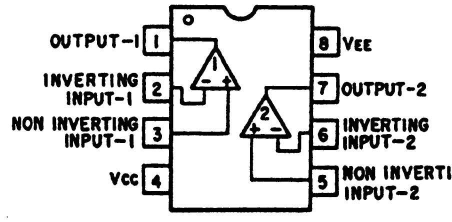
MN1280S (IC683)



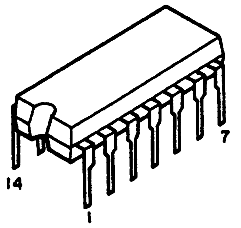
1 : Output
2 : V_{DD}
3 : GND

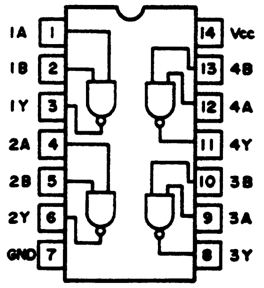
BA15218 (IC503)

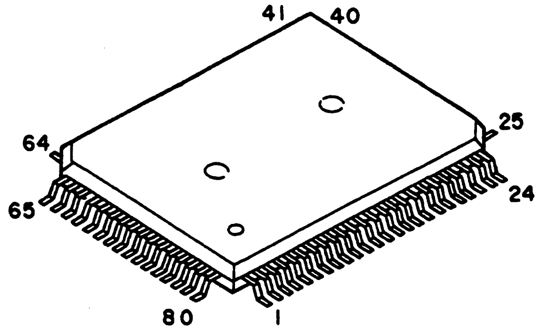



OUTPUT-1 1
INVERTING INPUT-1 2
NON INVERTING INPUT-1 3
Vcc 4
8 VEE
7 OUTPUT-2
6 INVERTING INPUT-2
5 NON INVERTING INPUT-2
1
2

HD74HC00P (IC602)




1A 1
1B 2
1Y 3
2A 4
2B 5
2Y 6
GND 7
14 Vcc
13 4B
12 4A
11 4Y
10 3B
9 3A
8 3Y



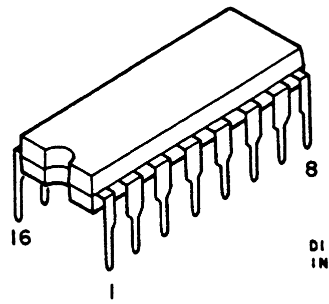
CXD2500AQFP (IC681)

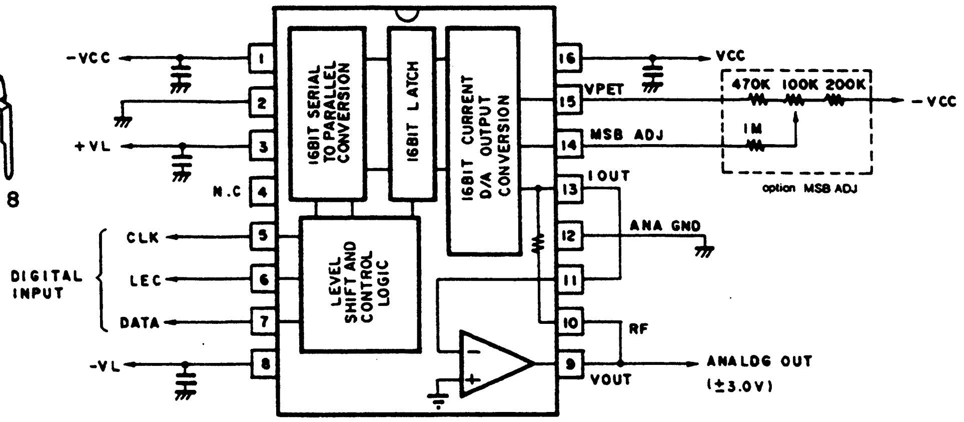
- **CXD2500AQFP Pin Function Table**

Pin no.	Pin symbol	I/O		Pin description
1	FOK	I		Focus OK input pin. Used in SENS output and the servo auto sequencer.
2	FSW	O	Z,0	Output filter switching output of the spindle motor.
3	MON	O	1,0	On-off control output of the spindle motor.
4	MDP	O	1,Z,0	Servo control of the spindle motor.
5	MDS	O	1,Z,0	Servo control of the spindle motor.
6	LOCK	O	1,0	Samples GFS at 460 Hz. When GFS is "H", H is output. L is output when there is "L", 8 times in succession.
7	NC	–		
8	VCOO	O	1,0	Oscillation circuit output for analog EFM PLL.
9	VCOI	I		Oscillation circuit output for analog EFM PLL. f_{LOCK}=8.6436 MHz.
10	TEST	I		Test pin, always grounded.
11	PDO	O	1,Z,0	For charge pump used with analog EFM PLL.
12	Vss			Ground
13	NC	–		
14	NC	–		
15	NC	–		
16	VPCO	O	1,Z,0	PLL charge pump output used for vari-pitch.
17	VCKI	O		Clock input f_{CENTER} from the external VCO for varipitch equals 16.9344 MHz.
18	FILO	O	Analog	Filter output (slave = digital PLL) for master PLL.
19	FILI	I		Filter input for master PLL.
20	PCO	O	1,Z,0	Charge pump output for master PLL.
21	AVss			Analog ground.
22	CLTV	I		VCO control voltage input for master.
23	AV$_{DD}$			Analog supply (+5 V)
24	RF	I		EFM signal input
25	TEST2	I		Grounded
26	TEST3	I		Grounded
27	ASYO	O	1,0	EFM full-swing output. (L = Vss, H = V$_{DD}$)
28	TEST4	I		Grounded
29	NC	–		
30	PSSL	I		Switching input for the audio data output mode. Serial output with "L" and parallel output with "H".
31	WDCK	O	1,0	D/A interface for 48-bit slot. Word clock f = 2Fs.
32	LRCK	O	1,0	D/A interface for 48-bit slot. LR clock f = Fs.
33	V$_{DD}$			Supply (+5 V)
34	DA16	O	1,0	DA16 (MSB) output when PSSL = 1. Serial data of the 48-bit slot when PSSL = 0. (2s' COMP, MSB first.)
35	DA15	O	1,0	DA15 output when PSSL = 1. Bit clock of the 48-bit slot when PSSL = 0.
36	DA14	O	1,0	DA14 output when PSSL = 1. Serial data of the 64-bit slot when PSSL = 0. (2s' COMP, LSB first.)
37	DA13	O	1,0	DA13 output when PSSL = 1. Bit clock of the 64-bit slot when PSSL = 0.
38	DA12	O	1,0	DA12 output when PSSL = 1. LR clock of the 64-bit slot when PSSL = 0.
39	DA11	O	1,0	DA11 output when PSSL = 1. GTOP output when PSSL = 0.
40	DA10	O	1,0	DA10 output when PSSL = 1. XUGF output when PSSL = 0.
41	DA09	O	1,0	DA09 output when PSSL = 1. XPLCK output when PSSL = 0.
42	DA08	O	1,0	DA08 output when PSSL = 1. GFS output when PSSL = 0.
43	DA07	O	1,0	DA07 output when PSSL = 1. RFCK output when PSSL = 0.
44	DA06	O	1,0	DA06 output when PSSL = 1. C2P0 output when PSSL = 0.
45	DA05	O	1,0	DA05 output when PSSL = 1. XRAOF output when PSSL = 0.
46	DA04	O	1,0	DA04 output when PSSL = 1. MNT3 output when PSSL = 0.
47	DA03	O	1,0	DA03 output when PSSL = 1. MNT2 output when PSSL = 0.
48	DA02	O	1,0	DA02 output when PSSL = 1. MNT1 output when PSSL = 0.
49	DA01	O	1,0	DA01 output when PSSL = 1. MNT0 output when PSSL = 0.
50	APTR	O	1,0	Control output for aperture correction. "H" with Rch.
51	APTL	O	1,0	Control output for aperture correction. "H" with Lch.
52	Vss			Ground
53	XTAI	I		16.9344 MHz x'tal oscillator circuit input. Or 33.8688 MHz input.
54	XTAO	O	1,0	16.9344 MHz x'tal oscillator circuit input.
55	XTSL	I		X'tal selection input pin. "L" when the x'tal is 16.9344 MHz and "H" when the x'tal is 33.8688 MHz.
56	FSTT	O	1,0	2/3 frequency division output of pins 53 and 54. Does not change with vari-pitch.
57	C4M	O	1,0	4.2336 MHz output. Changes simultaneously when varypitch is applied.
58	C16M	O	1,0	16.9344 MHz output. Changes simultaneously when varypitch is applied.
59	MD2	I		Digital-Out on/off control. H when on and L when off.
60	DOUT	O	1,0	Digital-out output pin.
61	EMPH	O	1,0	When the playback disc has emphasis, "H" is output. "L" is output when there is no emphasis.
62	WFCK	O	1,0	WFCK (Write Frame Clock) output.
63	SCOR	O	1,0	"H" output when either sub code sync S0 or S1 is detected.
64	SBSO	O	1,0	Sub P through W serial output.
65	EXCK	I		Clock input for SBSO read-out use.
66	SQSO	O	1,0	SubQ 80 bit and PCM peak level data 16-bit output.
67	SQCK	I		Clock input for SQSO read-out use.
68	MUTE	I		Mute L is cancelled with H.
69	SENS	–	1,Z,0	SENS output. Output to CPU.
70	XRST	I		System set. Reset with "L".
71	DATA	I		Serial data input from CPU.
72	XLAT	I		Latch input from CPU. Latches serial data on the fall.
73	V$_{DD}$			Supply (+5 V)
74	CLOK	I		Serial data transfer clock input from CPU.
75	SEIN	I		Sense input from SSP.
76	CNIN	O		Count signal input of number of track jumps.
77	DATO	O	1,0	Serial data output to SSP.
78	XLTO	O	1,0	Serial data latch output to SSP. Latches on the fall.
79	CLKO	O	1,0	Serial data transfer clock output to SSP.
80	MIRR	I		Mirror signal input. Used in jumps of 128 tracks or more with an auto sequencer.

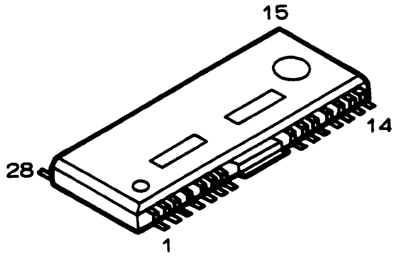
CD PLAYER SECTION

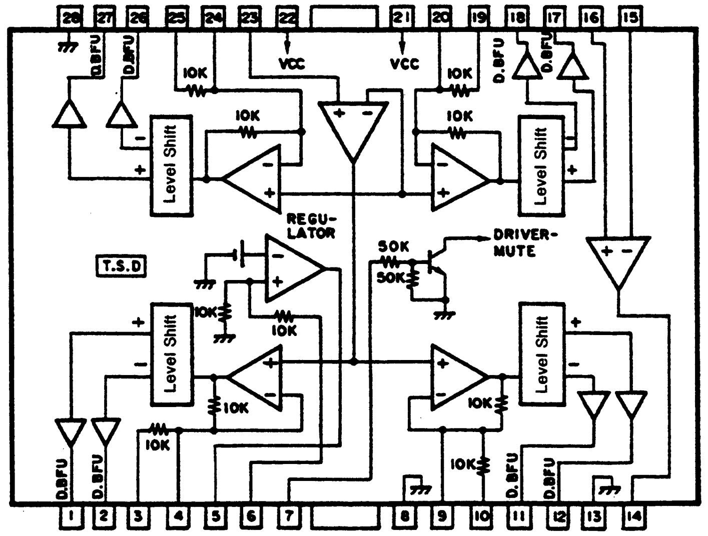
PCM61P-L (IC203, 204)



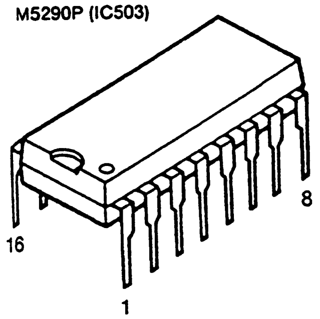

-VCC
+VL
N.C
DIGITAL INPUT
CLK
LEC
DATA
-VL
16BIT SERIAL TO PARALLEL CONVERSION
16BIT LATCH
16BIT CURRENT D/A OUTPUT CONVERSION
LEVEL SHIFT AND CONTROL LOGIC
VCC
VPET
MSB ADJ
IOUT
ANA GND
RF
VOUT
ANALOG OUT (±3.0V)
470K
100K
200K
1M
-VCC
option MSB ADJ

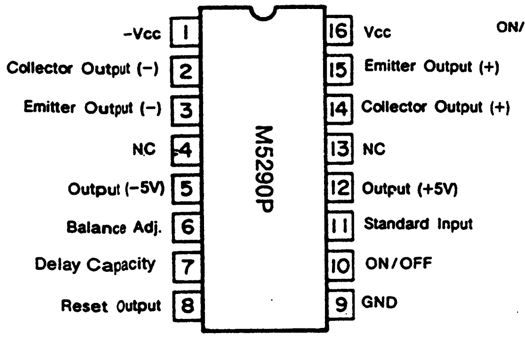
BA6296FP (IC502)



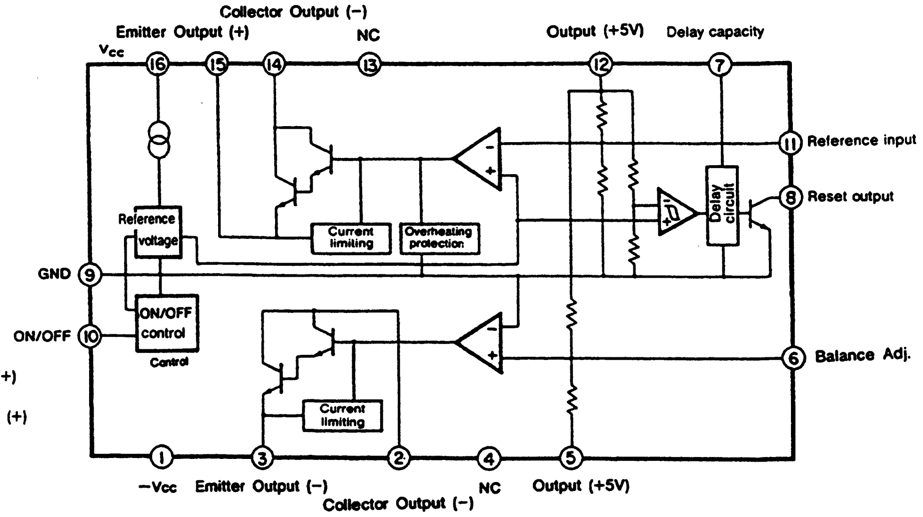

D.BFU
10K
VCC
Level Shift
REGU-LATOR
T.S.D
50K
DRIVER-MUTE

M5290P (IC503)

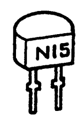



M5290P
-Vcc 1
Collector Output (-) 2
Emitter Output (-) 3
NC 4
Output (-5V) 5
Balance Adj. 6
Delay Capacity 7
Reset Output 8
16 Vcc
15 Emitter Output (+)
14 Collector Output (+)
13 NC
12 Output (+5V)
11 Standard Input
10 ON/OFF
9 GND

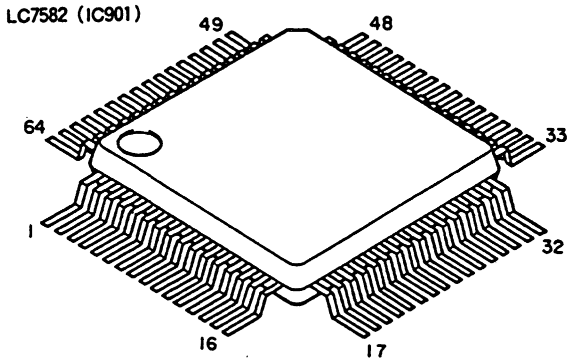
BLOCK DIAGRAM


Collector Output (-)
Emitter Output (+)
NC
Output (+5V)
Delay capacity
Vcc
Reference input
Reset output
GND
ON/OFF
Balance Adj.
Reference voltage
ON/OFF control
Control
Current limiting
Overheating protection
Delay circuit
-Vcc
Emitter Output (-)
Collector Output (-)
NC
Output (+5V)

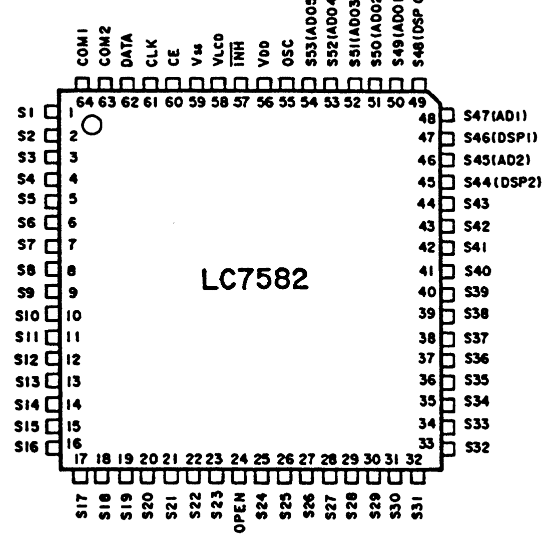
● IC PROTECTOR ICP-N15 (IC501, 502)



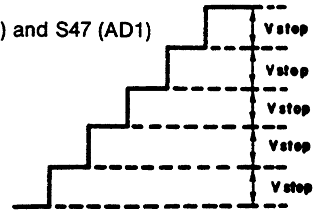
LC7582 (IC901)


49
48
64
33
1
32
16
17

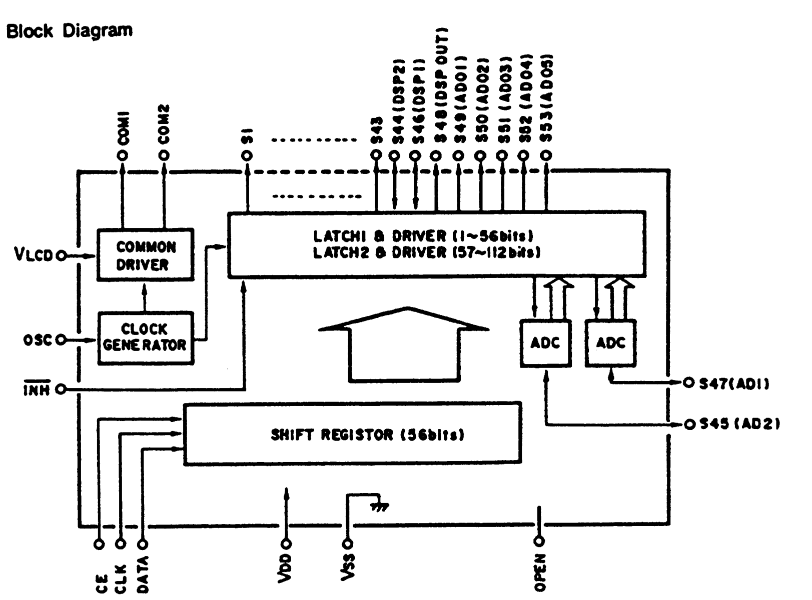
Pin Configuration


LC7582
COM1
COM2
DATA
CLK
CE
Vss
VLCD
INH
VDD
OSC
S53(AD05)
S52(AD04)
S51(AD03)
S50(AD02)
S49(AD01)
S48(DSP OUT)
S47(AD1)
S46(DSP1)
S45(AD2)
S44(DSP2)
S43
S42
S41
S40
S39
S38
S37
S36
S35
S34
S33
S32
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
S17
S18
S19
S20
S21
S22
S23
OPEN
S24
S25
S26
S27
S28
S29
S30
S31

Step Voltage Difference
Input voltage of S45 (AD2) and S47 (AD1)


Vstep
Vstep
Vstep
Vstep
Vstep

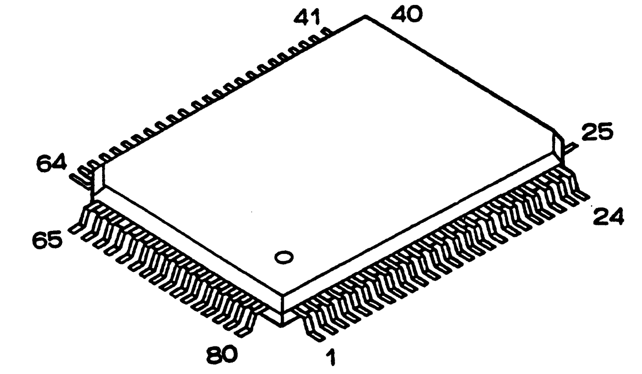
Block Diagram

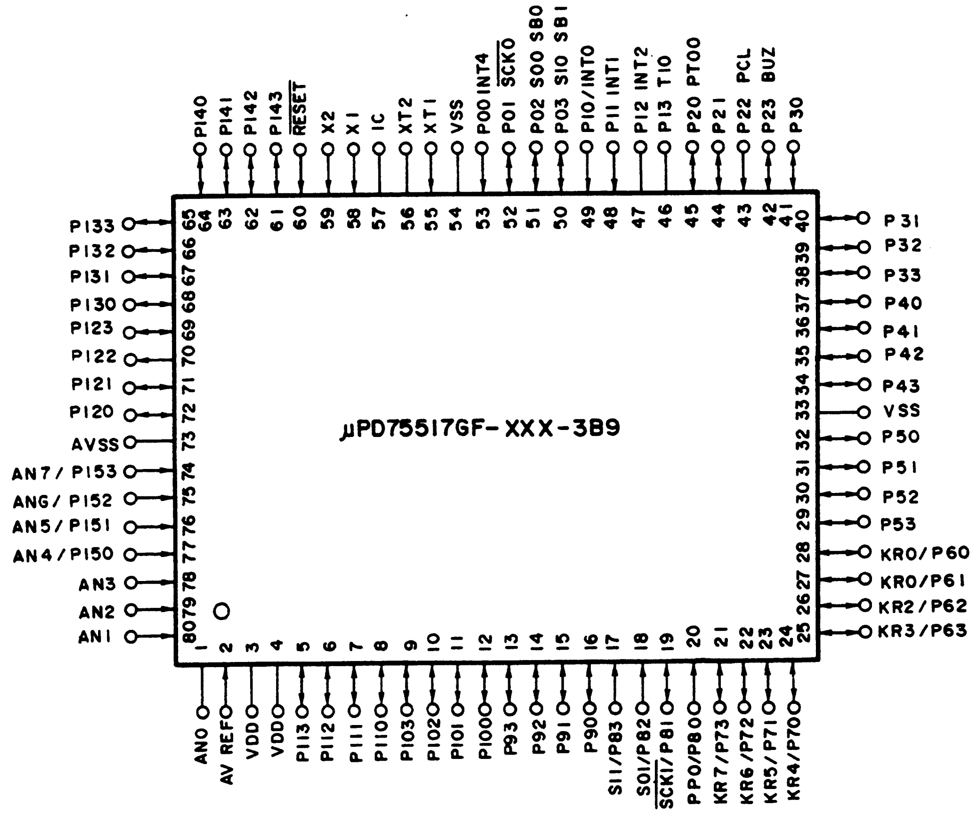

COM1
COM2
S1
S43
S44(DSP2)
S46(DSP1)
S48(DSP OUT)
S49(AD01)
S50(AD02)
S51(AD03)
S52(AD04)
S53(AD05)
VLCD
OSC
INH
COMMON DRIVER
CLOCK GENERATOR
LATCH1 & DRIVER (1~56bits)
LATCH2 & DRIVER (57~112bits)
ADC
ADC
S47(AD1)
S45(AD2)
SHIFT REGISTOR (56bits)
CE
CLK
DATA
VDD
Vss
OPEN

Pin Description

S1~S13 : Segment output pins
S46 (DSP1), S44 (DSP2) : Segment output or DSP input pins
S47 (AD1), S45 (AD2) : Segment output or AD input pins
S48 (DSPOUT) : Segment output or DSP output pins
S49~S53 (AD01~5) : Segment output or AD output pins
COM1.2 : Common output pins (At 1/1 duty, only COM1 is used and COM2 is open)
V_{LCD} : Pin for LCD bias voltage setting
OSC : Oscillation pin
CE, CLK, DATA : Input pins for serial data transfer
V_{SS}, V_{DD} : Supply pins
$\overline{\text{INH}}$: Display-off input pin (Valid only with the output driver. As a result, the transfer of serial data is possible while the display is off.)
OPEN : No connection

μ PD75517GF (IC682)


41
40
25
24
64
65
80
1


μPD75517GF-XXX-3B9
P140
P141
P142
P143
RESET
X2
X1
IC
XT2
XT1
VSS
P00 INT4
P01 SCK0
P02 S00 SB0
P03 SI0 SB1
P10/INT0
P11 INT1
P12 INT2
P13 TI0
P20 PT00
P21
P22 PCL
P23 BUZ
P30
P31
P32
P33
P40
P41
P42
P43
VSS
P50
P51
P52
P53
KR0/P60
KR0/P61
KR2/P62
KR3/P63
P133
P132
P131
P130
P123
P122
P121
P120
AVSS
AN7/P153
AN6/P152
AN5/P151
AN4/P150
AN3
AN2
AN1
AN0
AV REF
VDD
VDD
P113
P112
P111
P110
P103
P102
P101
P100
P93
P92
P91
P90
SI1/P83
SO1/P82
SCK1/P81
PPO/P80
KR7/P73
KR6/P72
KR5/P71
KR4/P70

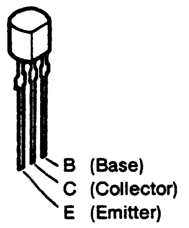
- **Pin Description**

No.	Board Name	Function Name	Function
1	AN0	NC	Ground (In)
2	AVref	NC	Ground (In)
3	VDD		5 V
4	VDD		5 V
5	P113	NC	Open (Out)
6	P112	PPLYON	PLAY indication
7	P111	PAUTO	AUTO. OFF indication
8	P110	PDPLAY	PLAY indication
9	P103	XRST OUT	Reset signal for DSP
10	P102	POWER OFF OUT	Output for power on/off control
11	P101	DIGITAL OFF OUT	Output for digital on/off control
12	P100	STANDBY OUT	Output for power on/off control
13	P93	PINITIAL	Test pin (Open)
14	P92	PEDIT	Test pin (Open)
15	P91	PSEARCH	Test pin (Open)
16	P90	PDOUT	Test pin (Open)
17	P83/SI1	NC	Ground (In)
18	P82/SO1	PLCDDATA	Data for the LCD
19	P81/SCK1	PLCDCLK	Clock for the LCD
20	P80/PPO	NC	Ground (In)
21	P73/KR7	KS3 OUT	Key scan output
22	P72/KR6	KS2 OUT	Key scan output
23	P71/KR5	KS1 OUT	Key scan output
24	P70/KR4	KS0 OUT	Key scan output
25	P63/KR3	KS7 OUT	Key scan output
26	P62/KR2	KS6 OUT	Key scan output
27	P61/KR1	KS5 OUT	Key scan output
28	P60/KR0	KS4 OUT	Key scan output
29	P53	KS8 OUT	Key scan output
30	P52	KS9 OUT	Key scan output
31	P51	G1	Open (Out)
32	P50	G2	Open (Out)
33	VSS		Ground (In)
34	P43	CD ON/OFF IN	Input for digital on/off control
35	P42	A.P. SEL IN	Selects the auto power on/off function
36	P41	NC	Ground (In)
37	P40	NC	Ground (In)
38	P33	PLCDOFF OUT	INH for the LCD
39	P32	PLCDCE OUT	CE for the LCD
40	P31	G3	Open (Out)
41	P30	G4	Open (Out)
42	P23/BUZ	PSVCDATA OUT	Data output for the servo control signal and D and F.
43	P22/PCL	PSVCXLT OUT	Servo control signal latch output
44	P21	PSVCCLK	Clock output for the servo control signal and D and F.
45	P20/PT00	PLASER OUT	Laser on/off control output
46	P13/T10	PSENSE IN	Servo condition detection signal input
47	P12/INT2	PGFS IN	Rotation sync signal input from DSP
48	P11/INT1	PSCOR IN	Sub code sync signal input
49	P10/INT0	SERIAL SIG IN	Denon bus input
50	P03/SI0	PSUBQ IN	Sub code data input
51	P02/S00	NC	Open (Out)
52	P01/SCK0	PSQCK OUT	Clock output for sub code reading
53	P00/INT4	50/60 IN	50 Hz/60 Hz input
54	VSS		Ground
55	XT1	NC	Ground
56	XT2	NC	Open
57	IC	NC	Ground
58	X1		4 MHz Cell lock
59	X2		4 MHz Cell lock
60	RESET		Reset signal input
61	P143	PFOK IN	Focus OK signal input
62	P142	PSWOP IN	Loader open position detection
63	P141	PSWCL IN	Loader close position detection
64	P140	PSWPMD IN	Pickup inner track position detection
65	P133	PMVCL OUT	Loader drive signal
66	P132	PMVOP OUT	Loader drive signal
67	P131	D. MUTE OUT	Muting output for the LSI
68	P130	SERIAL SIG OUT	Denon bus output
69	P123	PDFLATCH OUT	Latch output for D and F
70	P122	A. MUTE OUT	Audio muting output
71	P121	PEMPHA OUT	Signal output with emphasis control
72	P120	PDIRC OUT	Servo control signal output
73	AVSS	NC	Ground
74	AN7/P153	KR0 IN	Key return input
75	AN6/P152	KR1 IN	Key return input
76	AN5/P151	KR2 IN	Key return input
77	AN4/P150	KR3 IN	Key return input
78	AN3	NC	Ground (In)
79	AN2	NC	Ground (In)
80	AN1	NC	Ground (In)

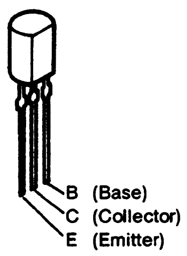
CD PLAYER SECTION

● Transistors

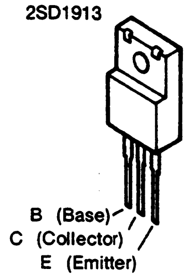
2SA1015(GR)


B (Base)
C (Collector)
E (Emitter)

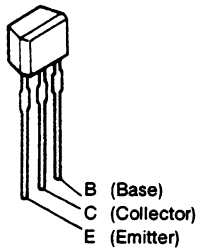
2SB562(C)
2SD468(C)


B (Base)
C (Collector)
E (Emitter)

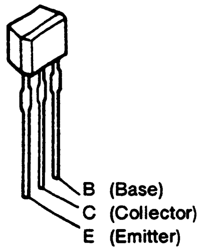
2SB1274
2SD1913


B (Base)
C (Collector)
E (Emitter)

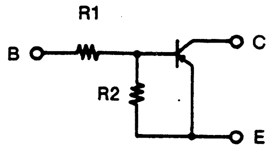
2SC2458(Y/GR)


B (Base)
C (Collector)
E (Emitter)

DTA114ES PNP Type
DTC114ES } NPN Type
DTC144ES

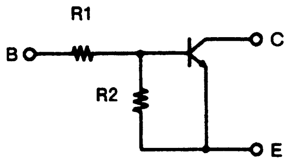

B (Base)
C (Collector)
E (Emitter)

PNP Type



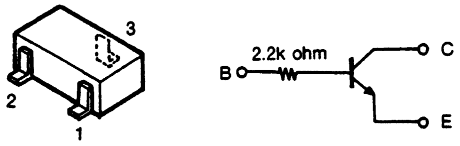
	R1	R2
DTA114ES	10k ohm	10k ohm

NPN Type



	R1	R2
DTC114ES	10k ohm	10k ohm
DTC144ES	47k ohm	47k ohm

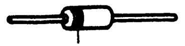
DTC323TK


3
2
1
2.2k ohm
B
C
E

1 : GND / Emitter
2 : In / Base
3 : Out / Collector

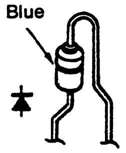
● Diodes

1SS270
1SS270A

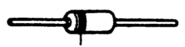


1SS270 : Light Blue
1SS270A : Navy Blue

1SR35-200A



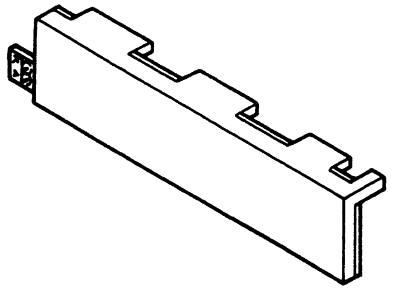
HZS6A-1
HZS6B-1



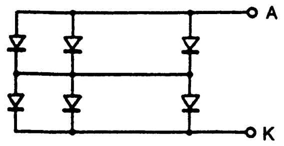
Navy Blue

● LED ASS'Y

SLF-351D
Part No. 3939470009 (D581)



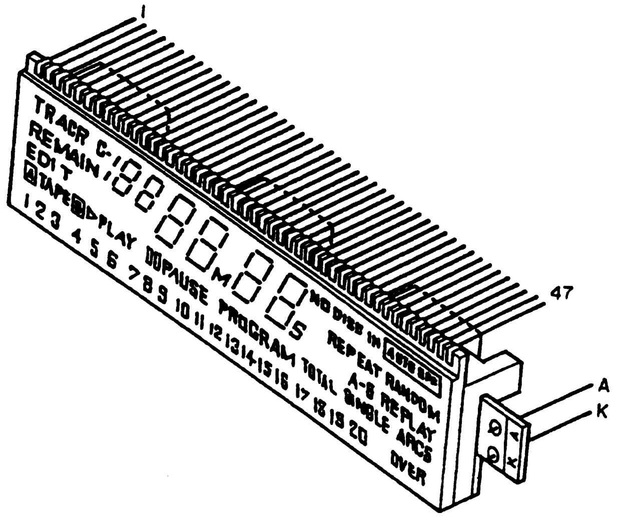
● Connection

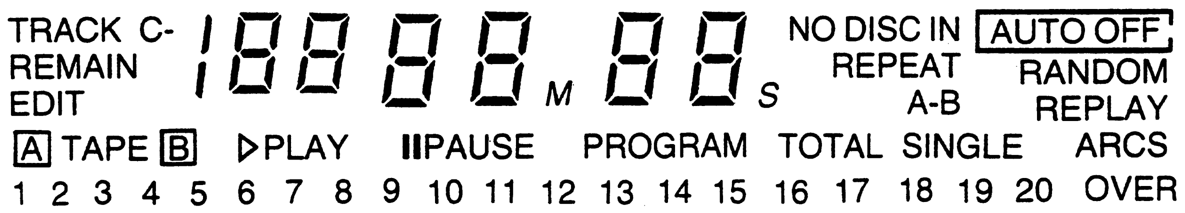


2 Series 22 Para = 44 Chip

● LCD ASS'Y (8233JP)

Part No. 3934141003



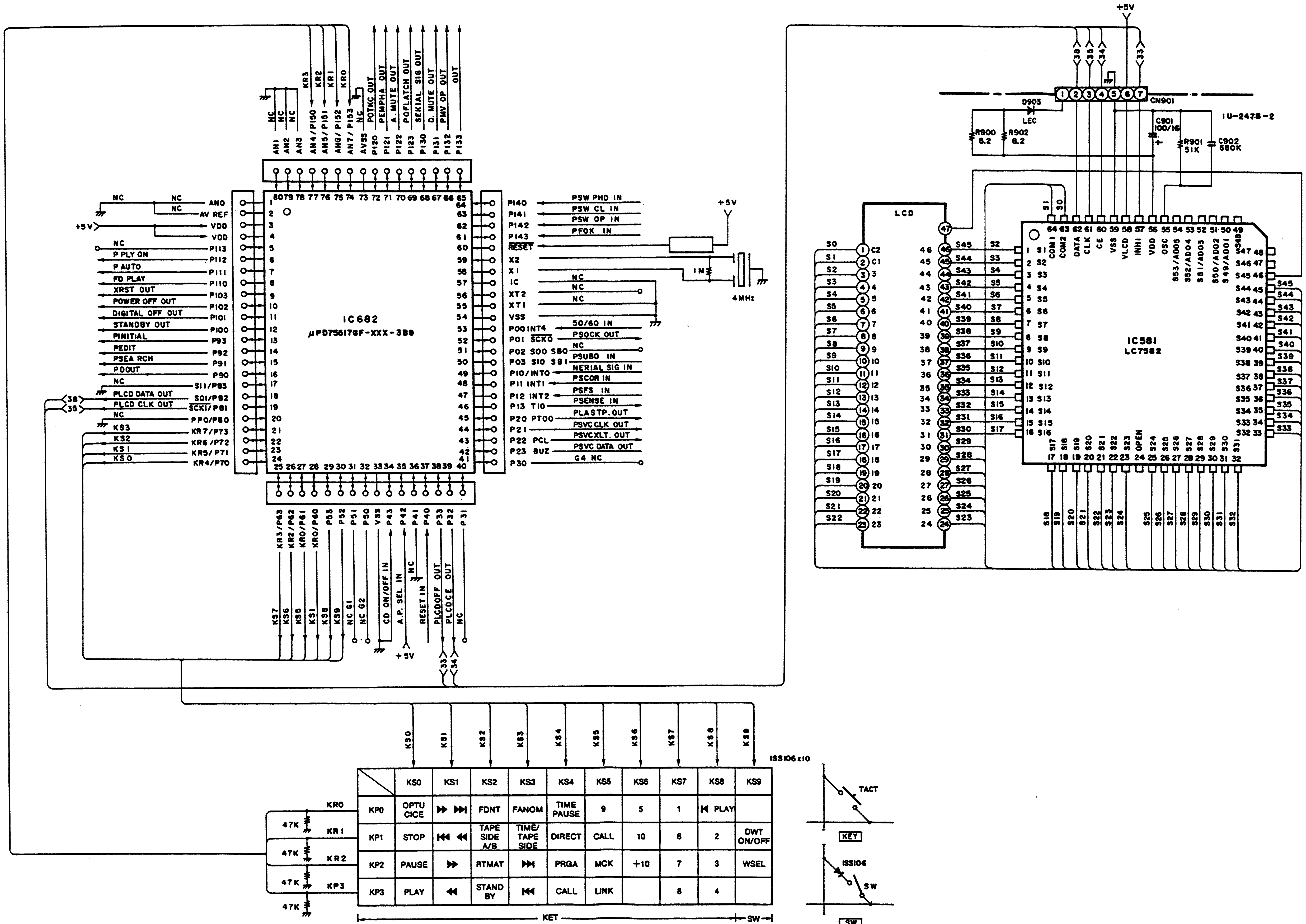

TRACK C-
REMAIN
EDIT
M
S
NO DISC IN
AUTO OFF
REPEAT
RANDOM
A-B
REPLAY
A TAPE B
▷PLAY
IIPAUSE
PROGRAM
TOTAL
SINGLE
ARCS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 OVER

NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
COM1	—	COM	6	PAUSE	4	B	2	TRACK	A	C-	1f	1a	1b	2d	2a	2g	3d	3e	3a	3b	4e	4f	4b	M
COM2	COM	—	5	PLAY	3	TAPE	1	REMAIN	EDIT	1d	1e	1g	1c	2e	2f	2b	2c	3f	3g	3c	4d	4a	4g	4c

NO.	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
COM1	TOTAL	5e	5f	5a	5c	6f	6a	6b	17	B	DISC	IN	SINGLE	ARCS	RANDOM	AUTO	20	16	14	12	10	8	7b
COM2	PROGRAM	5d	5g	5b	6d	6e	6g	6c	S	A-	NO	REPEAT	18	OVER	REPLAY	OFF	19	15	13	11	9	7	7c

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

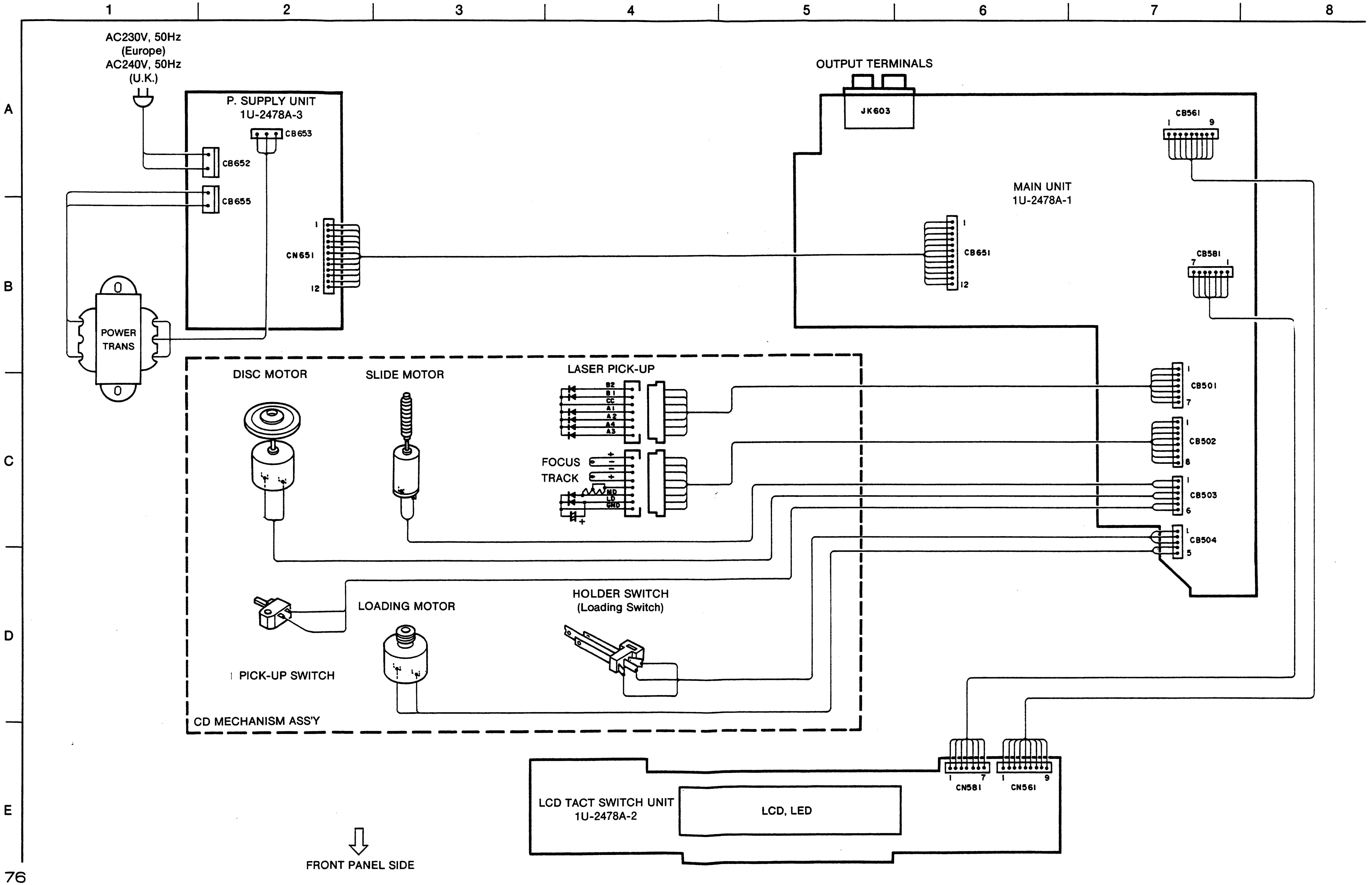
CD PLAYER SECTION

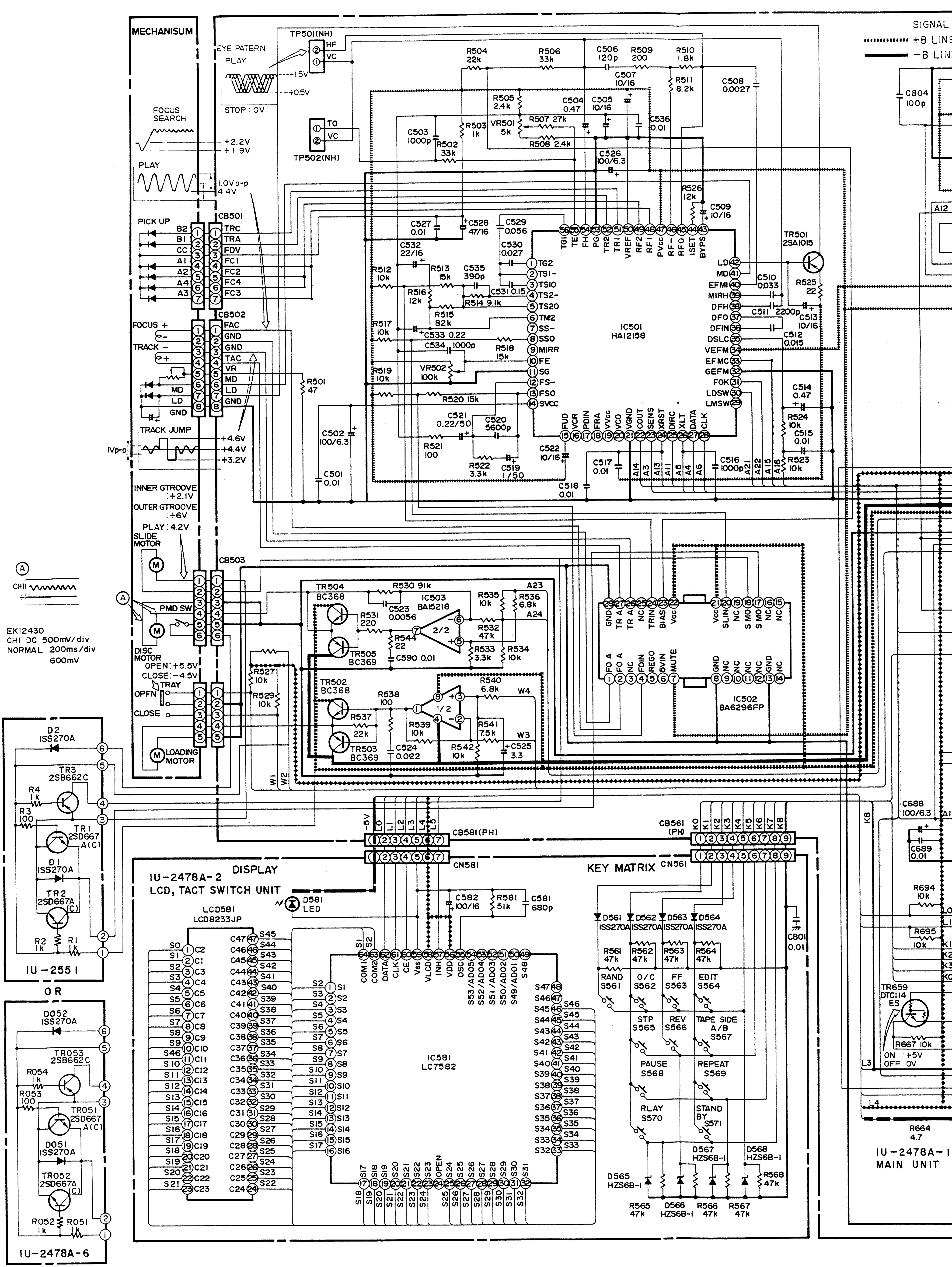

1
2
3
4
5
6
7
8
A
B
C
D
E
IC682
μPD75617GF-XXX-389
NC
AN0
AV REF
+5V
VDD
P113
P PLY ON
P112
P AUTO
P111
FD PLAY
P110
XRST OUT
P103
POWER OFF OUT
P102
DIGITAL OFF OUT
P101
STANDBY OUT
P100
PINITIAL
P93
PEDIT
P92
PSEA RCH
P91
PDOUT
P90
SI1/P83
38
PLCD DATA OUT
SO1/P82
35
PLCD CLK OUT
SCK1/P81
PPO/P80
KS3
KR7/P73
KS2
KR6/P72
KS1
KR5/P71
KS0
KR4/P70
AN1
AN2
AN3
AN4/P150
AN5/P151
ANG/P152
AN7/P153
AVSS
P120
P121
P122
P123
P130
P131
P132
P133
KR3
KR2
KR1
KR0
POTKC OUT
PEMPHA OUT
A. MUTE OUT
POFLATCH OUT
SEKIAL SIG OUT
D. MUTE OUT
PMV OP OUT
OUT
P140
PSW PHD IN
P141
PSW CL IN
P142
PSW OP IN
P143
PFOK IN
RESET
X2
X1
1M
4MHz
IC
XT2
XT1
VSS
P00 INT4
50/60 IN
P01 SCKO
PSOCK OUT
P02 SO0 SB0
P03 SI0 SB1
PSUBO IN
NERIAL SIG IN
P10/INT0
PSCOR IN
P11 INT1
PSFS IN
P12 INT2
PSENSE IN
P13 TI0
PLASTP. OUT
P20 PTO0
PSVC CLK OUT
P21
PSVCXLT. OUT
P22 PCL
PSVC DATA OUT
P23 BUZ
G4 NC
P30
KR3/P63
KR2/P62
KR0/P61
KR0/P60
P53
P52
P51
P50
VSS
P43
P42
P41
P40
P33
P32
P31
KS7
KS6
KS5
KS1
KS8
KS9
NC G1
NC G2
CD ON/OFF IN
A.P. SEL IN
RESET IN
PLCDOFF OUT
PLCDCE OUT
33
34
LCD
COM1
COM2
IC581
LC7582
DATA
CLK
CE
VSS
VLCD
INH1
VDD
OSC
OPEN
S53/AD05
S52/AD04
S51/AD03
S50/AD02
S49/AD01
S48
S0
S1
S45
S23
CN901
D903
LEC
R900
8.2
R902
8.2
C901
100/16
R901
51K
C902
680K
1U-2478-2
1SS106 x10
47K
KR0
KR1
KR2
KP3
TACT
KEY
1SS106
SW
KET

	KS0	KS1	KS2	KS3	KS4	KS5	KS6	KS7	KS8	KS9
KP0	OPTU CICE	▶▶ ▶▶▎	FDNT	FANOM	TIME PAUSE	9	5	1	▎◀ PLAY	
KP1	STOP	▎◀◀ ◀◀	TAPE SIDE A/B	TIME/ TAPE SIDE	DIRECT	CALL	10	6	2	DWT ON/OFF
KP2	PAUSE	▶▶	RTMAT	▶▶▎	PRGA	MCK	+10	7	3	WSEL
KP3	PLAY	◀◀	STAND BY	▎◀◀	CALL	LINK		8	4	

KEY, SWITCH MATRIX

WIRING DIAGRAM

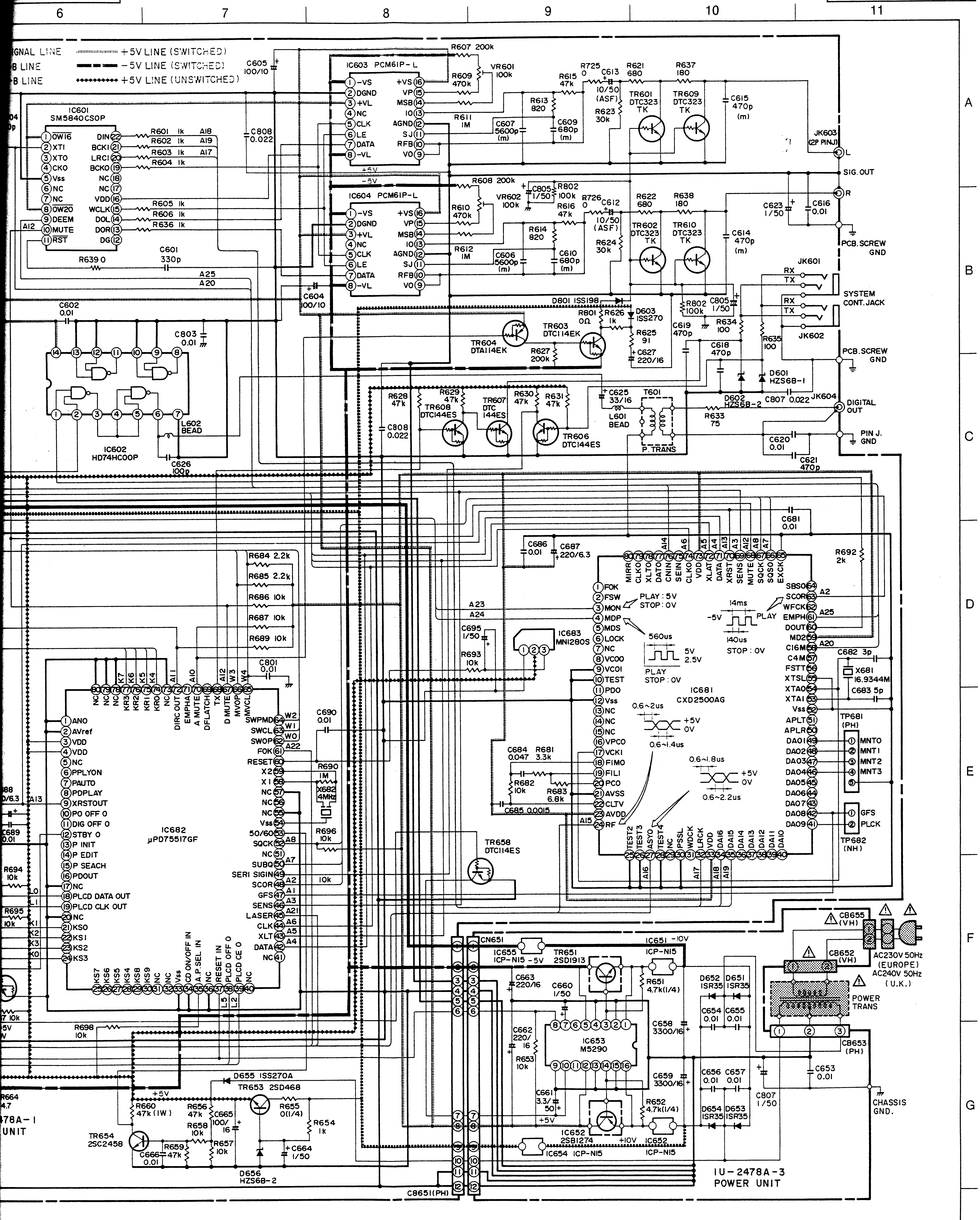

1
2
3
4
5
6
7
8
A
B
C
D
E
AC230V, 50Hz
(Europe)
AC240V, 50Hz
(U.K.)
P. SUPPLY UNIT
1U-2478A-3
CB653
CB652
CB655
CN651
1
12
POWER
TRANS
OUTPUT TERMINALS
JK603
MAIN UNIT
1U-2478A-1
CB561
1
9
CB651
1
12
CB581
7
1
DISC MOTOR
SLIDE MOTOR
LASER PICK-UP
B2
B1
CC
A1
A2
A4
A3
FOCUS
TRACK
MD
LD
GND
CB501
1
7
CB502
1
8
CB503
1
6
CB504
1
5
LOADING MOTOR
HOLDER SWITCH
(Loading Switch)
PICK-UP SWITCH
CD MECHANISM ASS'Y
LCD TACT SWITCH UNIT
1U-2478A-2
LCD, LED
CN581
1
7
CN561
1
9
FRONT PANEL SIDE


1
2
3
4
5
SIGNAL
+B LIN
−B LIN
MECHANISUM
EYE PATERN
PLAY
STOP : 0V
+1.5V
+0.5V
TP501(NH)
HF
VC
TO
VC
TP502(NH)
FOCUS SEARCH
+2.2V
+1.9V
PLAY
1.0Vp-p
4.4V
CB501
PICK UP
B2 B1 CC A1 A2 A4 A3
TRC TRA FDV FC1 FC2 FC4 FC3
CB502
FOCUS +
TRACK −
MD
LD
GND
FAC GND GND TAC VR MD LD GND
TRACK JUMP
1Vp-p
+4.6V
+4.4V
+3.2V
INNER GTROOVE :+2.1V
OUTER GTROOVE :+6V
PLAY : 4.2V
SLIDE MOTOR
CB503
PMD SW
DISC MOTOR
OPEN : +5.5V
CLOSE : −4.5V
TRAY
OPFN
CLOSE
LOADING MOTOR
Ⓐ
CH1
EK12430
CH1 DC 500mV/div
NORMAL 200ms/div
600mV
R504 22k
R506 33k
C506 120p
R509 200
R510 1.8k
C507 10/16
R511 8.2k
C508 0.0027
C804 100p
R505 2.4k
C504 0.47
C505 10/16
C536 0.01
R503 1k
VR501 5k
R507 27k
R508 2.4k
C503 1000p
R502 33k
C526 100/6.3
R526 12k
C509 10/16
C527 0.01
C528 47/16
C529 0.056
C530 0.027
C532 22/16
R512 10k
R513 15k
C535 390p
C531 0.15
R516 12k
R514 9.1k
R515 82k
R517 10k
C533 0.22
C534 1000p
R518 15k
R519 10k
VR502 100k
R501 47
R520 15k
C521 0.22/50
C520 5600p
C502 100/6.3
R521 100
R522 3.3k
C519 1/50
C522 10/16
C501 0.01
C517 0.01
C518 0.01
C516 1000p
IC501
HA12158
TG2 TS1− TS10 TS2− TS20 TM2 SS− SSO MIRR FE SG FS− FSO SVCC
TG1 TE FH PG TR2 TR1 VREF RF2 RF1 PVcc RF− RFO ISET BYPS
LD MD EFMI MIRH DFH DFO DFIN DSLC VEFM EFMC GEFM FOK LDSW LMSW
FUD VCR PDIN FRA VVcc VCO VGND COUT SENS XRST DIRC XLT DATA CLK
A14 A13 A11 A5 A4 A6 A21 A22 A15 A16
TR501 2SA1015
R525 22
C510 0.033
C511 2200p
C513 10/16
C512 0.015
C514 0.47
R524 10k
C515 0.01
R523 10k
A12
TR504 BC368
R530 91k
IC503 BA15218
R531 220
C523 0.0056
R535 10k
R536 6.8k
A23
A24
R532 47k
R544 22
2/2
R533 3.3k
R534 10k
TR505 BC369
C590 0.01
R527 10k
R529 10k
TR502 BC368
R538 100
R540 6.8k
W4
1/2
R537 22k
R539 10k
R541 7.5k
W3
TR503 BC369
C524 0.022
R542 10k
C525 3.3
W1
W2
IC502
BA6296FP
GND TR A TR A NC TRIN BIAS Vcc Vcc SLIN S MO S MO NC NC
FO A FO A NC FOIN REGO 5VIN MUTE GND NC NC NC GND NC
D2 1SS270A
TR3 2SB662C
R4 1k
R3 100
TR1 2SD667 A(C)
D1 1SS270A
TR2 2SD667A (C)
R2 1k
R1 1k
IU-2551
OR
D052 1SS270A
TR053 2SB662C
R054 1k
R053 100
TR051 2SD667 A(C)
D051 1SS270A
TR052 2SD667A (C)
R052 1k
R051 1k
IU-2478A-6
−5V L0 L1 L2 L3 L4 L5
CB581(PH)
CN581
CB561 (PH)
K0 K1 K2 K3 K4 K5 K6 K7 K8
CN561
DISPLAY
IU-2478A-2
LCD, TACT SWITCH UNIT
KEY MATRIX
D581 LED
C582 100/16
R581 51k
C581 680p
LCD581
LCD8233JP
IC581
LC7582
COM1 COM2 DATA CLK CE Vss VLCD INH VDD OSC S53/AD05 S52/AD04 S51/AD03 S50/AD02 S49/AD01 S48
D561 1SS270A
D562 1SS270A
D563 1SS270A
D564 1SS270A
R561 47k
R562 47k
R563 47k
R564 47k
C801 0.01
RAND S561
O/C S562
FF S563
EDIT S564
STP S565
REV S566
TAPE SIDE A/B S567
PAUSE S568
REPEAT S569
RLAY S570
STAND BY S571
D565 HZS6B-1
D566 HZS6B-1
D567 HZS6B-1
D568 HZS6B-1
R565 47k
R566 47k
R567 47k
R568 47k
C688 100/6.3
C689 0.01
R694 10k
R695 10k
TR659 DTC114 ES
R667 10k
ON : +5V
OFF : 0V
L3
L4
K8
R664 4.7
IU-2478A-1
MAIN UNIT

WARNING:
Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

MATIC DIAGRAM

CD PLAYER SECTION


6
7
8
9
10
11
A
B
C
D
E
F
G
SIGNAL LINE
+5V LINE (SWITCHED)
-5V LINE (SWITCHED)
+5V LINE (UNSWITCHED)
IC601 SM5840CSOP
IC602 HD74HC00P
IC603 PCM61P-L
IC604 PCM61P-L
VR601 100k
VR602 100k
TR601 DTC323TK
TR609 DTC323TK
TR602 DTC323TK
TR610 DTC323TK
TR603 DTC114EK
TR604 DTA114EK
TR606 DTC144ES
TR607 DTC144ES
TR608 DTC144ES
TR658 DTC114ES
D801 ISS198
D603 ISS270
D601 HZS6B-1
D602 HZS6B-2
JK603 (2P PINJ)
L
SIG. OUT
R
PCB.SCREW GND
JK601
RX
TX
SYSTEM CONT. JACK
JK602
JK604
DIGITAL OUT
PIN J. GND
L601 BEAD
L602 BEAD
T601
P. TRANS
IC681 CXD2500AG
IC682 µPD75517GF
IC683 MN1280S
X681 16.9344M
X682 4MHz
PLAY : 5V
STOP : 0V
14ms
560us
140us
PLAY
STOP : 0V
0.6~2us
0.6~1.4us
0.6~1.8us
0.6~2.2us
TP681 (PH)
MNT0
MNT1
MNT2
MNT3
TP682 (NH)
GFS
PLCK
CN651
IC651 ICP-N15
IC652 ICP-N15
IC654 ICP-N15
IC655 ICP-N15
TR651 2SD1913
IC652 2SB1274
IC653 M5290
TR653 2SD468
TR654 2SC2458
D651 ISR35
D652 ISR35
D653 ISR35
D654 ISR35
D655 ISS270A
D656 HZS6B-2
CB651 (PH)
CB652 (VH)
CB653 (PH)
CB655 (VH)
AC230V 50Hz (EUROPE)
AC240V 50Hz (U.K.)
POWER TRANS
CHASSIS GND.
1U-2478A-3 POWER UNIT
1U-2478A-1 UNIT

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is defective.

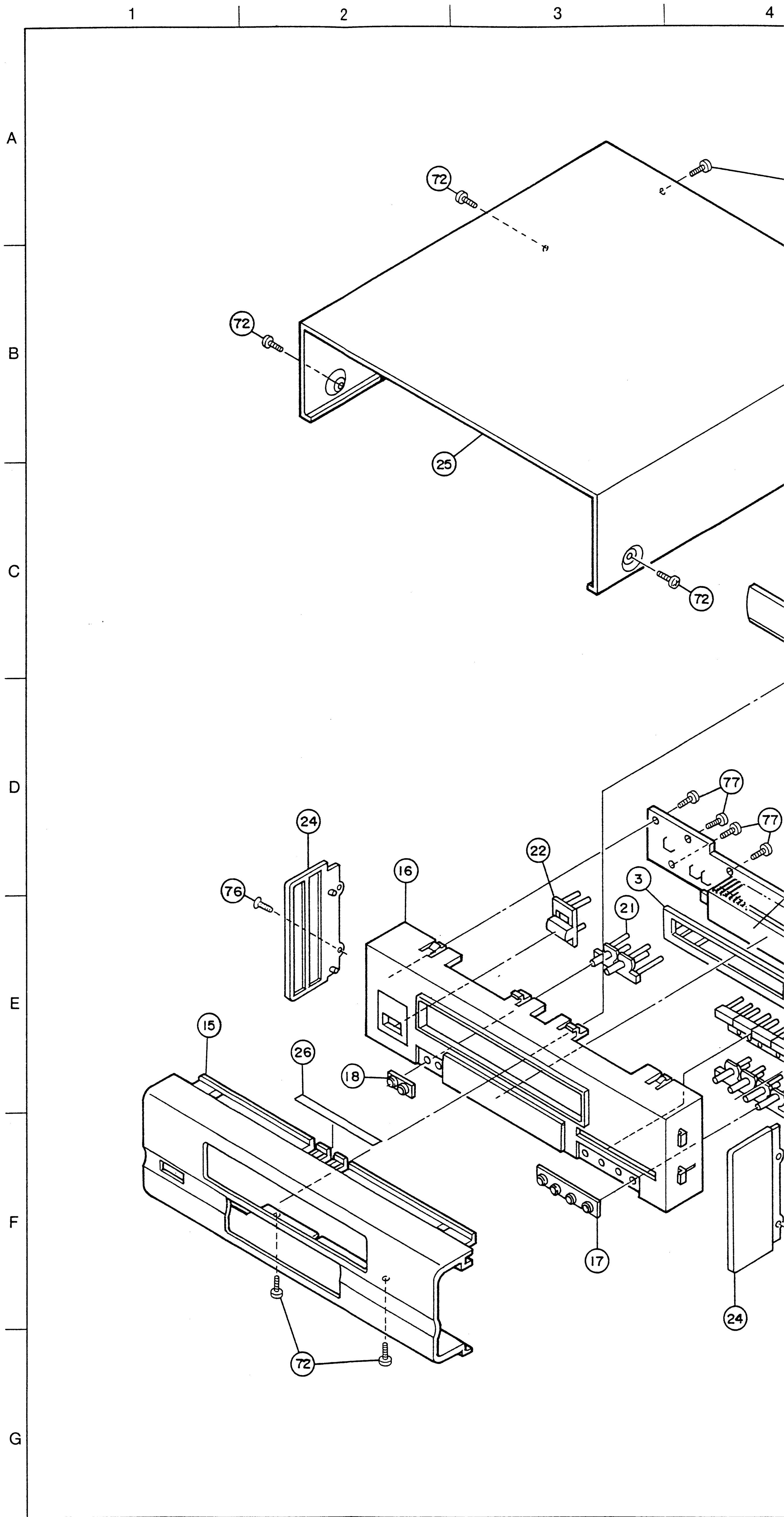
WARNING
DO NOT return the unit to the customer until the problem is located and corrected.

NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

H

EXPLODED VIEW OF PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	1U- 2478 A	P.W.Board Unit Assy		1S
1-1	—	Main Unit		(1)
1-2	—	LCD,Tact Switch Unit		(1)
1-3	—	Power Unit		(1)
1-4	—	Audio Unit		(1)
2	393 4141 003	LCD (8233JP)		1
3	449 0057 009	LCD Holder		1
4	—	—		
5	204 8413 000	2 P Pin Jack(C-GND)		1
6	204 8366 005	1 P Pin Jack		1
7	204 8421 005	Mini Jack		2
◉ 8	411 1184 332	Main Chassis		1
9	104 0237 201	Foot Assy		4
◉ 10	105 1044 221	Rear Panel	Europe model	1
◉ 10	105 1044 234	Rear Panel	U.K. model	1
◉ 11	412 2814 028	Card Spacer(L=10)		1
◉ 12	412 3548 005	P.W.B Catcher		2
13	449 0073 119	Mech. Holder		3
◉ 14	337 0017 018	CD Mech. Unit		1
◉ 15	144 2212 219	Front Panel		1
◉ 16	146 1402 217	Inner Panel Assy		1
17	146 1420 121	Knob Guide(Round)	4 Gang	1
18	146 1420 134	Knob Guide(Round)	2 Gang	1
19	113 1547 376	Push Knob(Play)	4 Gang	1
20	113 1549 044	Push Knob(Round)	4 Gang	1
21	113 1549 057	Push Knob(Round)	2 Gang	1
22	113 1460 013	Power Knob		1
23	146 1401 111	Loader Panel Assy		1
24	146 1411 211	Side Plate		2
◉ 25	102 0519 211	Top Cover		1
26	122 0183 007	Spacer	100×10×t0.5	1
27	412 1965 004	P.C Support	L=24	1
28	409 0052 019	Holder(A)	L=33.6	1
◉ 29	412 3485 016	P.W.Bracket		2
30	513 9316 000	Rating Sheet	Europe model	1
30	513 9316 026	Rating Sheet	U.K. model	1
◉ 31	412 9337 003	Trans Bracket		1
△ 32	206 2091 000	AC Cord W/Conn.		1
△ 33	445 0056 008	Cord Bush		1
34	513 2066 001	:Laser Caution		1
△ 35	233 6002 000	Power Trans.	Europe model	1
△ 35	233 9651 005	Power Trans.	U.K. model	1
★ 36	445 8004 007	Wire Clamper		1
37	—	—		
38	—	—		
39	513 0985 003	Inst. Label		1
★ 40	204 2307 028	7 P PH-PH Conn. Cord	CC501	1
★ 41	204 2306 032	8 P PH-PH Conn. Cord	CC502	1
SCREWS				
71	473 7002 018	Tapping Screw(S)3×8		11
72	473 7015 005	Tapping Screw(S)3×6	Black	19
73	473 7508 046	Tapping Screw(P)3×6		2
74	477 0064 107	Fixing Screw		2
75	473 7508 017	Tapping Screw(P)3×10	Black	3
76	473 7500 028	F.Tapping Screw(P)3×8		2
77	473 7505 007	Tapping Screw(P)2.6×8		9
78	473 7508 046	Tapping Screw(P)3×16		2
79	473 7004 003	Tapping Screw(S)4×8		2
80	—	—		
PACKING & ACCESSORIES (Not included EXPLODED VIEW)				
101	505 0241 005	Cabinet Cover		1
102	503 1062 106	:Cushion		1
103	503 1061 000	:Top Cushion		1
104	501 1657 007	:Carton Case		1
105				

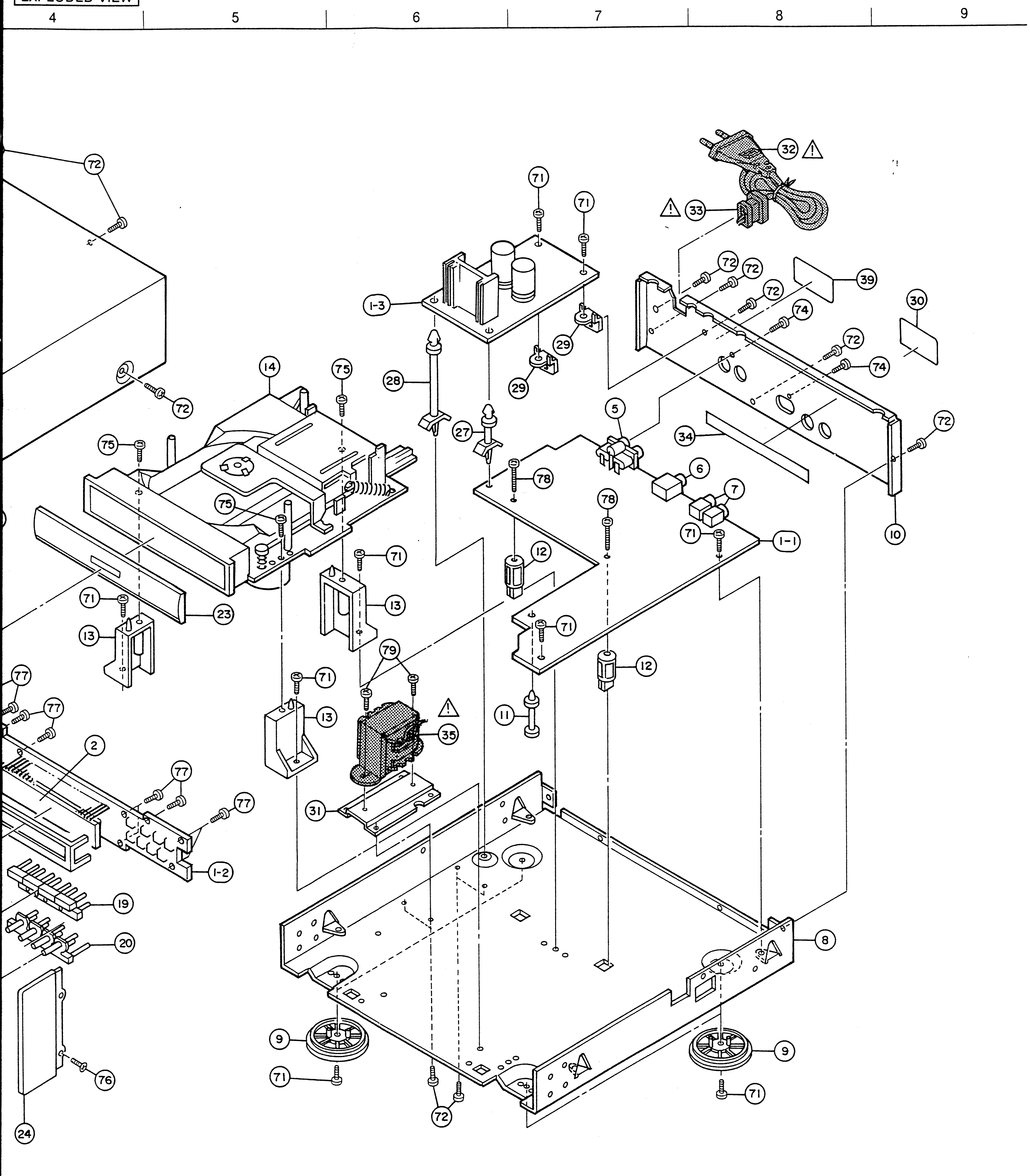


NOTE ON PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in some supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:
Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

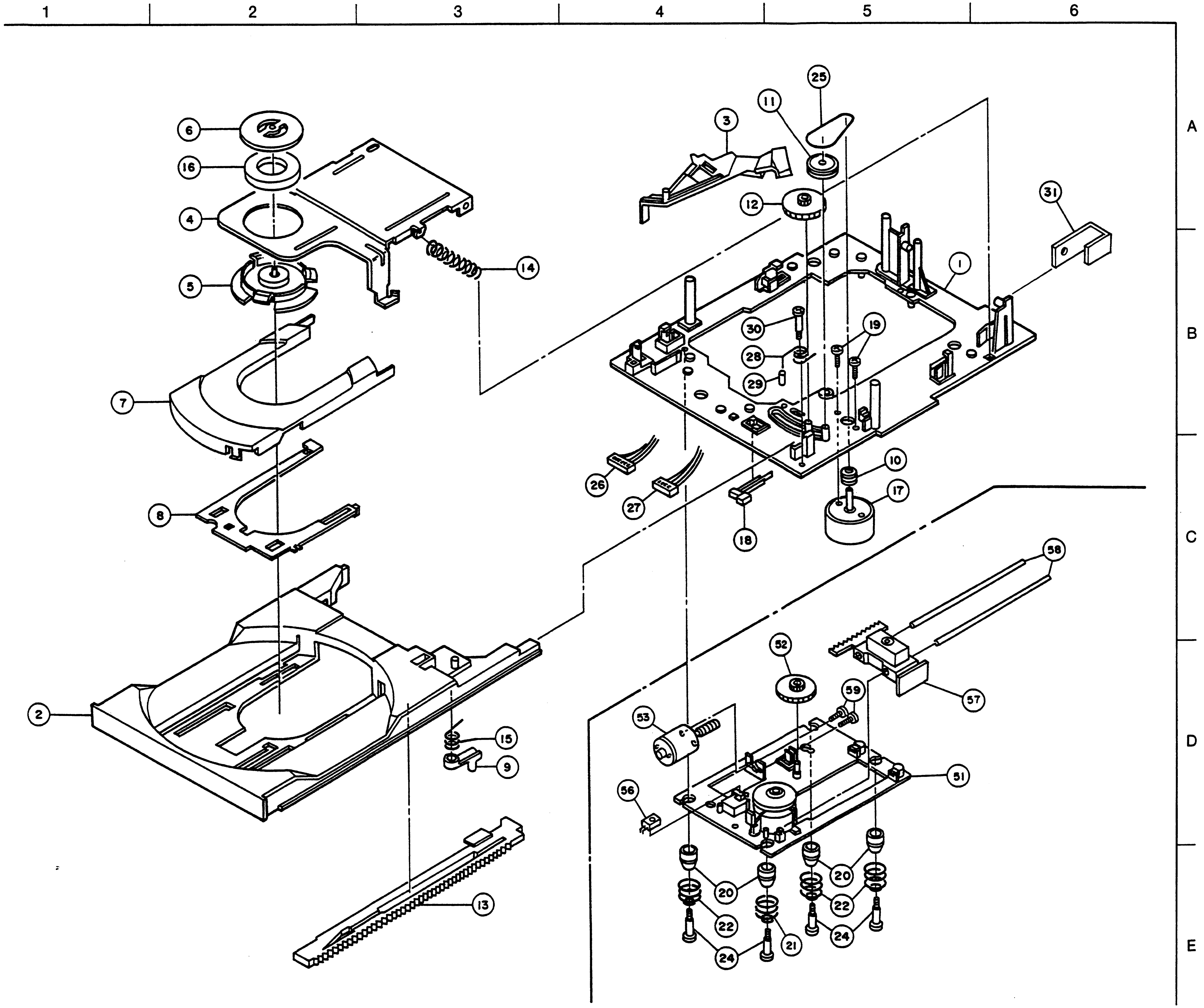
EXPLODED VIEW



4
5
6
7
8
9
72
71
71
32
33
1-3
72
72
72
39
30
74
14
75
28
29
29
72
74
72
5
27
34
75
78
6
75
78
7
71
1-1
10
71
12
23
71
13
13
71
79
12
77
77
71
11
13
35
2
77
77
31
1-2
19
20
8
9
9
71
72
76
71
24

ng, or in some case

CD MECHANISM Part No.: 3370017005



CD MECHANISM PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	9KA 81A2 95	Loading Plate Ass'y OS		1
1-1	—	Loading Plate		1
2	9KA 81G9 73	Tray 201		1
3	9KA 81G9 74	Switch Lever		1
4	9KA 81P4 62	Clamper Arm		1
5	9KA 81G9 75	Clamper		1
6	9KA 81P4 63	Clamper Plate		1
7	9KA 81G9 76	Disc Holder		1
8	9KA 81G9 77	Lifter Cam		1
9	9KA 81G9 78	Latch		1
10	9KA 81G2 35	Moter Pulley	Mold	1
11	9KA 81G1 22	Pulley Gear		1
12	9KA 81G1 23	Gear 3		1
13	9KA 81G5 81	Rack 11B		1
14	9KA 81S0 59	Clamp Spring		1
15	9KA 81S0 60	Latch Spring		1
16	9KA 82G0 57	Clamper Magnet		1
17	9KM 01T0 94	Motor	MDN-4RA3EZAS	1
18	9KS 01W0 51	Leaf Switch	LSC122338	1
19	9KM 20S0 04	Tams Screw	M2×4	2
20	9KA 82G0 56	Float Cushion M3		4
21	9KA 81S0 66	Float Spring M3A		1
22	9KA 81S0 67	Float Spring M3B		3
23	—	—		
24	9KA 81H0 85	Fixing Screw C		4
25	9KA 82G1 80	Belt 1.4×18.1		1
26	9KA 82G1 23	Connector Cord	CNW6PM3	1
27	9KA 82G1 24	Connector Cord	CNW5PM3	1
28	9KA 81S0 71	Tray Spring 201		1
29	9KA 82G1 84	UL Tube 2×5.5		1
30	9KA 82H0 35	Floater Screw RM		1
31				
32				
51	9KA 81A3 33	Spindle Motor (T/T) Ass'y	Including Motor, T/T	1
51-1	—	Unit Plate M3G2		1
52	9KA 81G9 66	Slide Gear T		1
53	9KA 81A2 90	Feed Motor Ass'y		1
53-1	—	F. Motor	RD-050Y	1
53-2	—	Warm Gear T		1
54	9KA 81A2 93	Turn Table Ass'y		1
54-1	—	Turn Table Plate		1
55	9KM 01T0 94	Motor	MDN-4RA3EZAS	1
56	9KS 01W0 56	Switch	SW-SPPB-11	1
57	9KA 81G7 49	Pickup M3	HOPM3TR	1
58	9KA 81H1 07	Guide Bar		2
59	9KM 20N0 03	Pan Screw	M2×3	4
60				
61				
62				

CASSETTE DECK SECTION

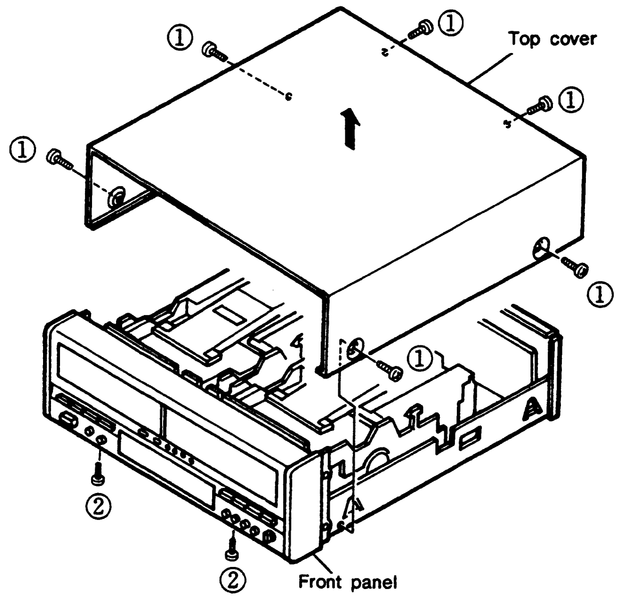
DISASSEMBLY PROCEDURES

(Follow these procedures in reverse order to reassemble.)

1. Removing the top cover and front panel

① Remove the 6 screws which fasten the top cover.

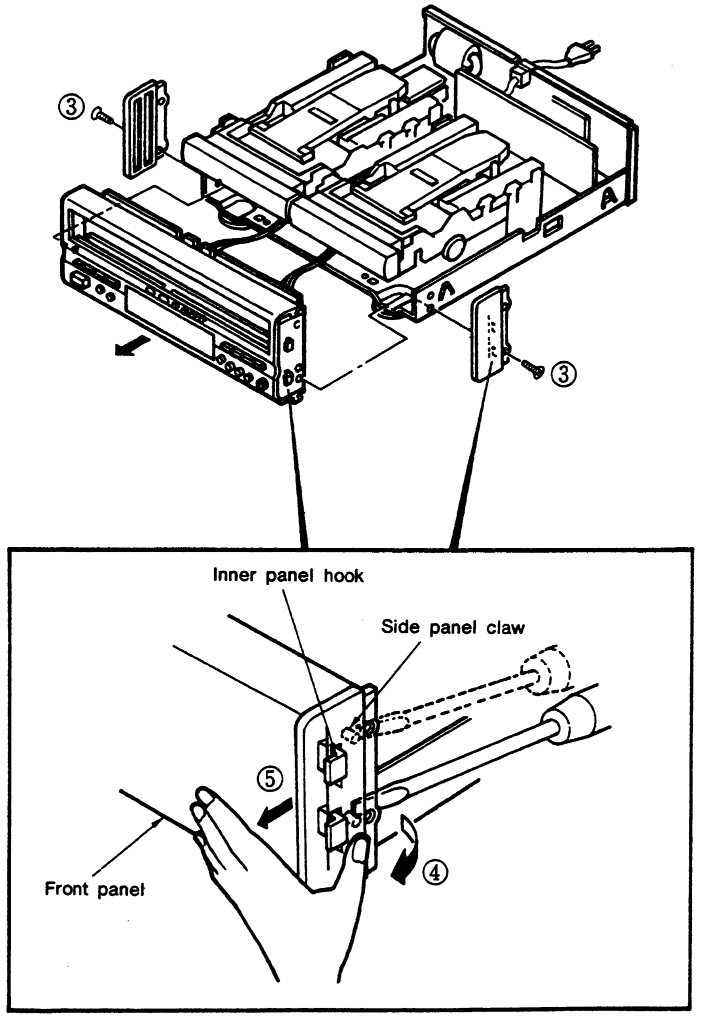
② Remove the 2 screws of the bottom side which fasten the front panel.


①
①
Top cover
①
①
①
①
②
②
Front panel

③ Remove the 2 screws which fasten the side plate.

④ While disengaging in the direction of the arrow the tabs of the side plate and the holes of the main chassis (with a flat-bladed screwdriver),

⑤ Push out the side plate in the direction of the arrow and remove from the hooks of the inner panel.
Using the same method for the left side, remove the side plate.
Remove the front panel in the direction of the arrow.

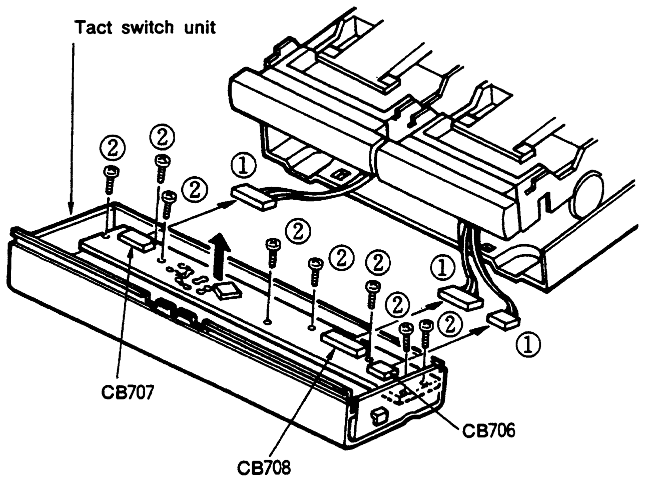

③
③
Inner panel hook
Side panel claw
⑤
④
Front panel

2. Removing the printed wiring boards

LCD, Tact Switch Unit IU-2479-2

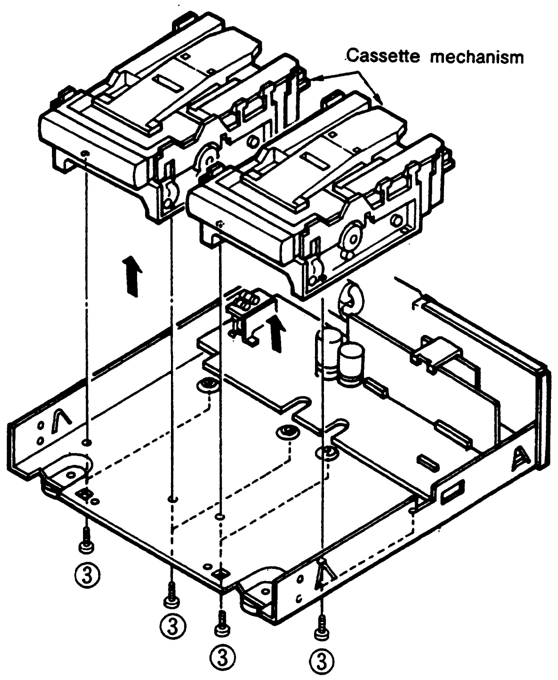
① Disconnect connectors CB706, CB707, and CB708 which are attached to the LCD Tact switch unit.

② Remove the 8 screws which are attached to the LCD Tact switch unit and remove the board in the direction of the arrow.


Tact switch unit
②
②
②
①
②
②
②
①
②
②
①
CB707
CB706
CB708

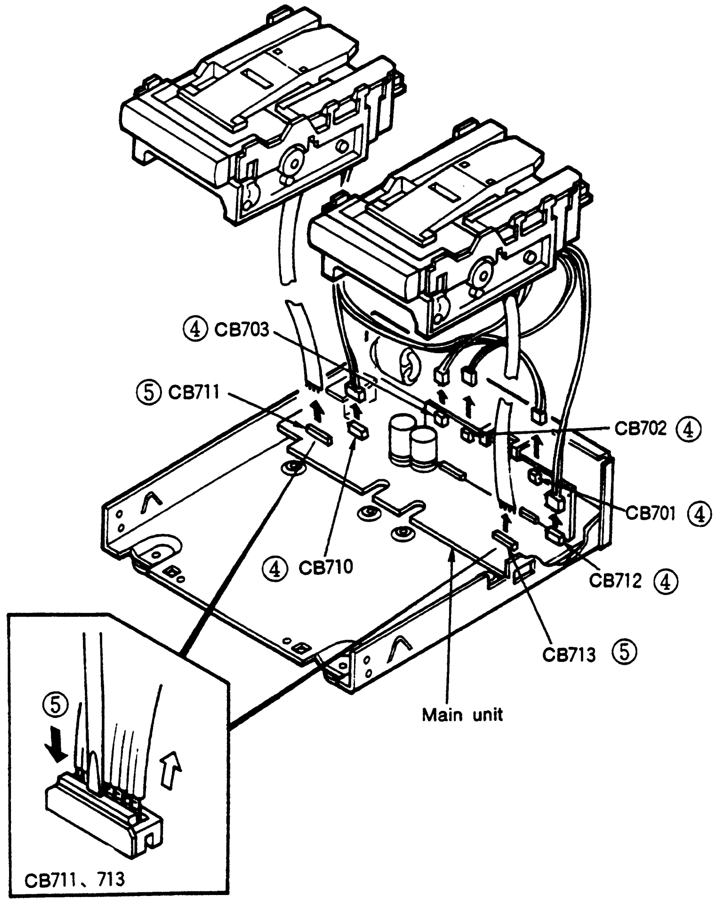
3. Removing the cassette mechanism

③ Turn the set upside down and remove the 8 screws which fasten the cassette mechanism unit. Lifting the chassis up will now allow the cassette mechanism unit to be removed.


Cassette mechanism
③
③
③
③

④ Disconnect connectors CB701, CB702, CB703, CB710, and CB712 which are attached to the main unit.

⑤ Using a flat-bladed screwdriver, press the head portion of connectors CB7111 and CB713, which are attached to the main unit, and while so doing disconnect in the direction of the arrow.

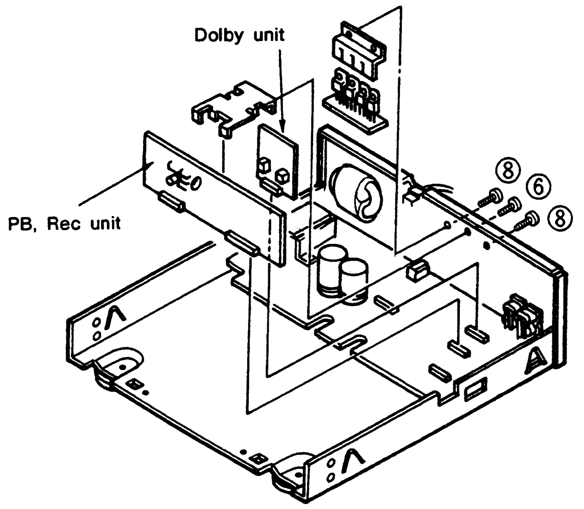

④ CB703
⑤ CB711
CB702 ④
CB701 ④
④ CB710
CB712 ④
CB713 ⑤
Main unit
⑤
CB711、713

PB, REC UNIT IU-2479-3
DOLBY UNIT IU-2479-4
P. TR & IC UNIT IU-2479-5

⑥ Remove the screw of the mounting fitting of the board which is attached to the rear panel.

⑦ Remove the playback and record unit, and the Dolby unit.

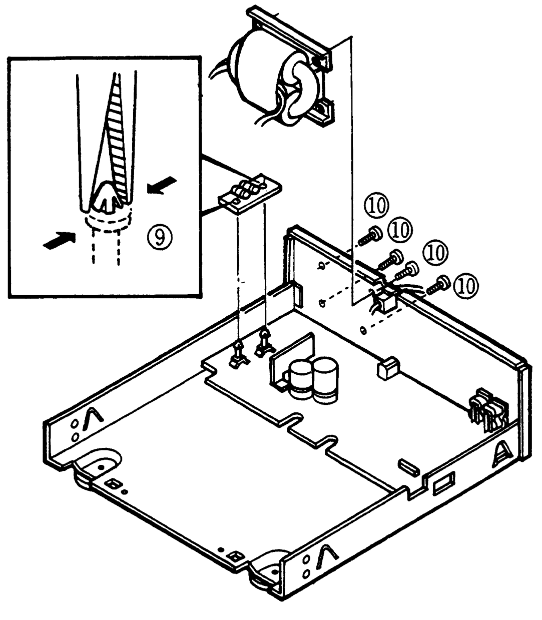
⑧ Remove the 2 screws which fasten the P. TR and IC unit.


Dolby unit
PB, Rec unit
⑧
⑥
⑧

EX. UNIT IU-2476-6

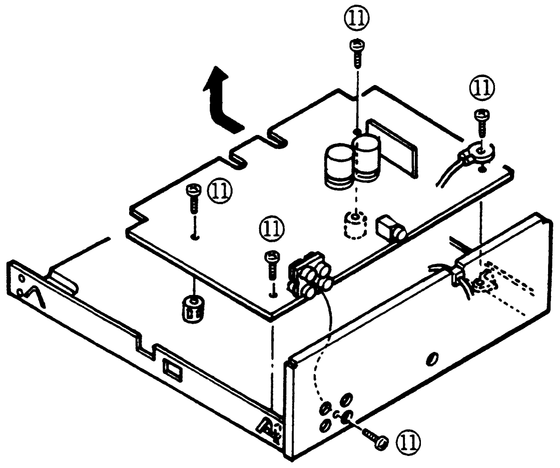
⑨ Use a pair of long-nosed pliers to disengage the board catch, which fastens the EX unit, in the direction of the arrow.

⑩ Remove the four screws which fasten the power transformer.



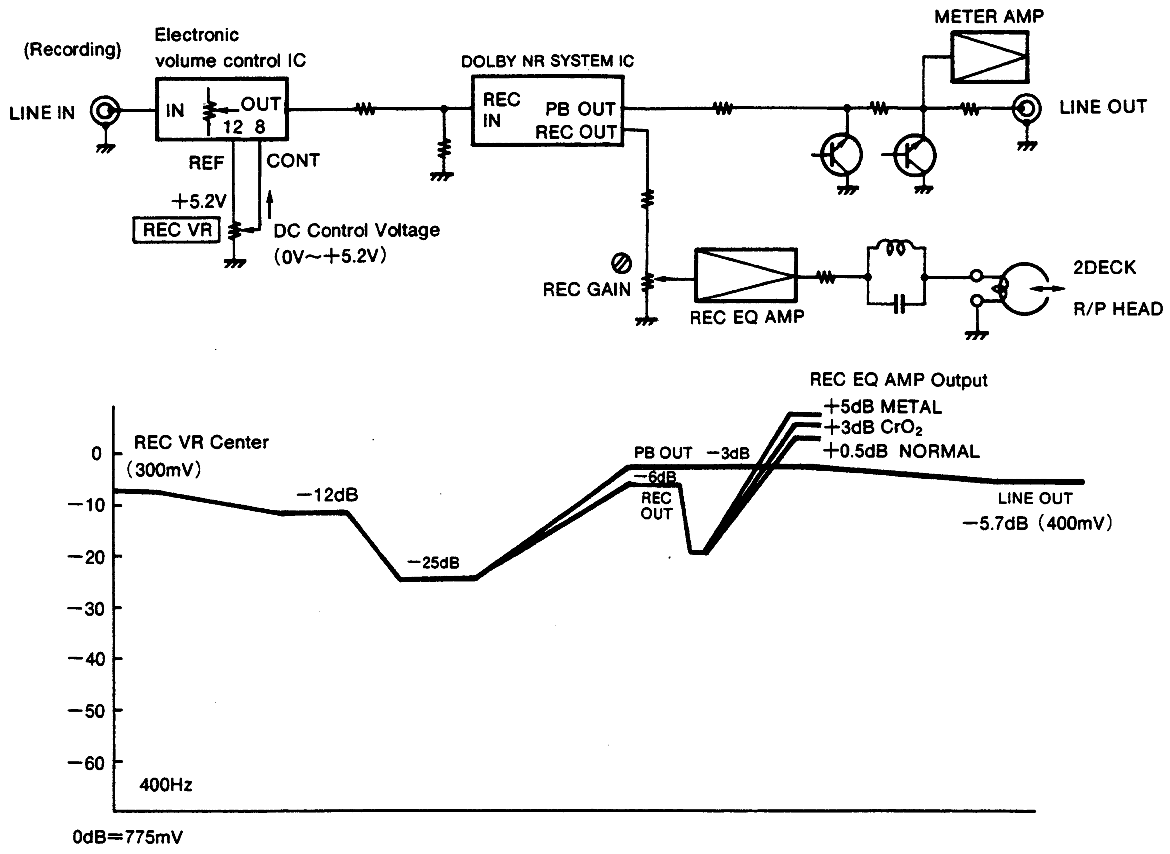
MAIN UNIT IU-2479-1

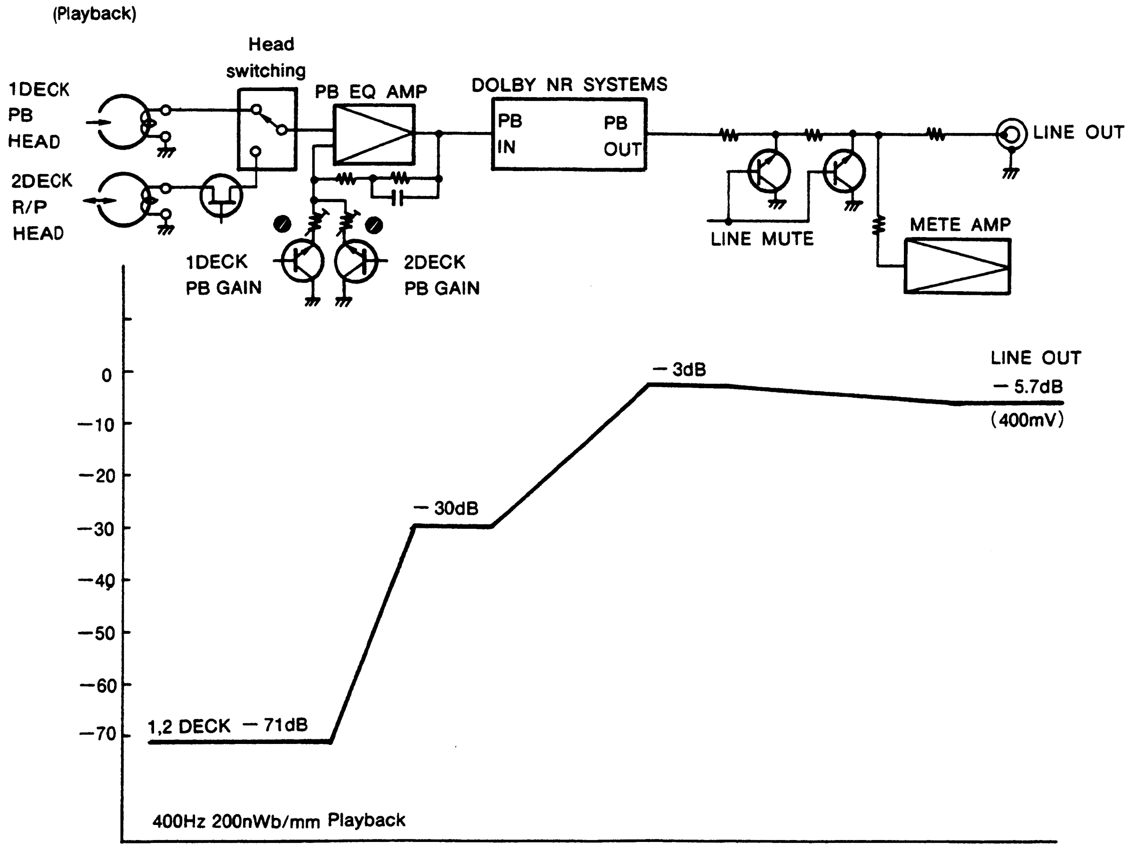
⑪ Remove the 5 screws which fasten the main unit and remove the board in the direction of the arrow.



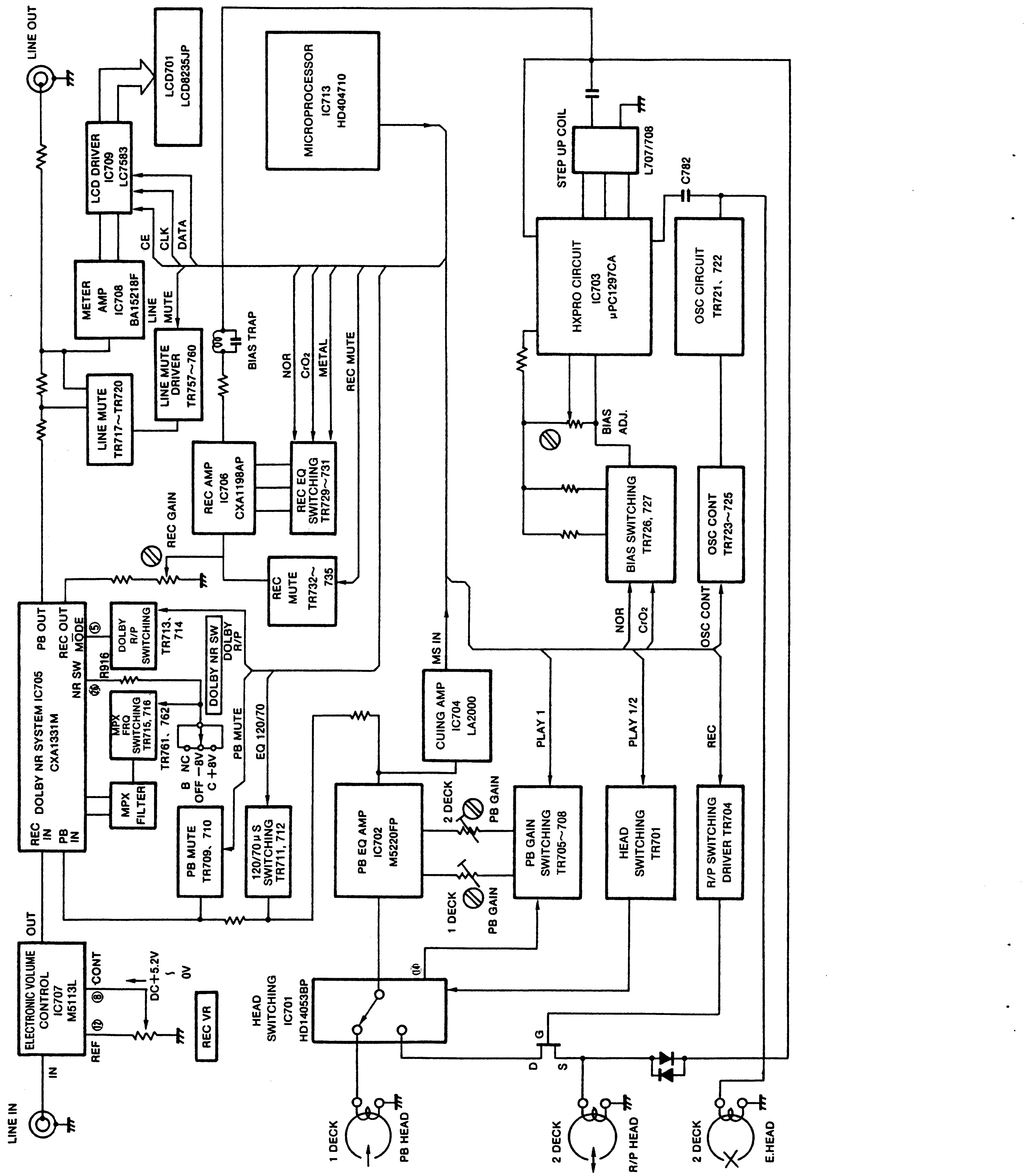
CASSETTE DECK SECTION

LEVEL DIAGRAM


(Recording)
Electronic volume control IC
LINE IN
IN
OUT
12 8
REF
CONT
+5.2V
REC VR
DC Control Voltage (0V~+5.2V)
DOLBY NR SYSTEM IC
REC IN
PB OUT
REC OUT
METER AMP
LINE OUT
REC GAIN
REC EQ AMP
2DECK R/P HEAD
REC EQ AMP Output
+5dB METAL
+3dB CrO2
+0.5dB NORMAL
REC VR Center (300mV)
PB OUT −3dB
−6dB
REC OUT
−12dB
−25dB
LINE OUT
−5.7dB (400mV)
0
−10
−20
−30
−40
−50
−60
400Hz
0dB=775mV


(Playback)
Head switching
1DECK PB HEAD
2DECK R/P HEAD
PB EQ AMP
DOLBY NR SYSTEMS
PB IN
PB OUT
LINE OUT
LINE MUTE
METE AMP
1DECK PB GAIN
2DECK PB GAIN
LINE OUT
− 5.7dB
(400mV)
− 3dB
− 30dB
1,2 DECK − 71dB
0
−10
−20
−30
−40
−50
−60
−70
400Hz 200nWb/mm Playback

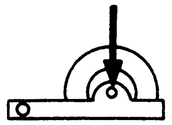
BLOCK DIAGRAM


LINE OUT
LCD701 LCD8235JP
MICROPROCESSOR IC713 HD404710
LCD DRIVER IC709 LC7583
CE
CLK
DATA
METER AMP IC708 BA15218F
LINE MUTE
LINE MUTE DRIVER TR757~760
BIAS TRAP
LINE MUTE TR717~TR720
NOR
CrO2
METAL
REC MUTE
REC AMP IC706 CXA1198AP
REC EQ SWITCHING TR729~731
REC GAIN
REC MUTE TR732~735
STEP UP COIL
L707/708
C782
HXPRO CIRCUIT IC703 μPC1297CA
OSC CIRCUIT TR721, 722
BIAS ADJ.
BIAS SWITCHING TR726, 727
OSC CONT TR723~725
NOR
CrO2
OSC CONT
MS IN
PB OUT
REC OUT
MODE
NR SW
R916
DOLBY NR SYSTEM IC705 CXA1331M
REC IN
PB IN
DOLBY R/P SWITCHING TR713, 714
DOLBY NR SW DOLBY R/P
MPX FRQ SWITCHING TR715, 716
TR761, 762
B NC
OFF −8V
C +8V
MPX FILTER
PB MUTE
EQ 120/70
PB MUTE TR709, 710
120/70μS SWITCHING TR711, 712
CUING AMP IC704 LA2000
PLAY 1
PLAY 1/2
REC
PB EQ AMP IC702 M5220FP
2 DECK PB GAIN
1 DECK PB GAIN
PB GAIN SWITCHING TR705~708
HEAD SWITCHING TR701
R/P SWITCHING DRIVER TR704
OUT
ELECTRONIC VOLUME CONTROL IC707 M5113L
IN
REF
CONT
DC+5.2V ~ 0V
REC VR
HEAD SWITCHING IC701 HD14053BP
G
D
S
LINE IN
1 DECK PB HEAD
2 DECK R/P HEAD
2 DECK E.HEAD

ADJUSTMENTS

- **Mechanism Measurements**

Measurement item	Standard value	Remarks
Winding torque (PLAY)	35~70 gcm	SONY TW-2111 for forward, TW-2121 for reverse
Fast-forward and rewind torque	70~180 gcm	SONY TW-2231
Back tension torque	$2^{+2.3}_{-1.3}$ gcm	SONY TW-2111 for forward, TW-2121 for reverse
Pinch roller pressure	270 ± 50 g	See diagram at right
Fast-forward and rewind time	110 ± 15 s	C-60



With the deck in the play mode, apply force with the tension gauge in the direction of the arrow and read the value at which the pinch roller stops rotating.

- **ELECTRICAL ADJUSTMENTS**

- **Preparations Before Adjustments**

1. **Measuring Instruments Necessary for Adjustments**
   - Screwdriver: Small flat-bladed screwdriver for variable resistors
   - Low frequency oscillator
   - Attenuator
   - V.T.V.M.
   - Oscilloscope
   - Frequency counter
   - Test tapes (TEAC MTT-111, MTT-114, MTT-150, DENON HDX/60, or equivalent)
   - Load resister 47kohm 2pcs. (A-BEX, TC-111, TCC-153, TCC-130)

- **Adjustment notes**

① Before adjusting, wipe the surface of the heads, the capstans, and the pinch rollers with a piece of gauze moistened with alcohol.

② Demagnetize the playback, recording, and erasure heads with a head eraser.

③ Completely demagnetize the adjustment screwdriver.

④ Unless otherwise specified, set the switches at the following positions and use the LINE IN Terminal IN jacks for the input.

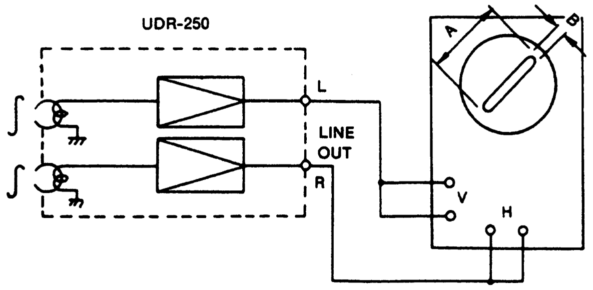
DOBLY NR SW: OFF
REC VR: CENTER (Click position)

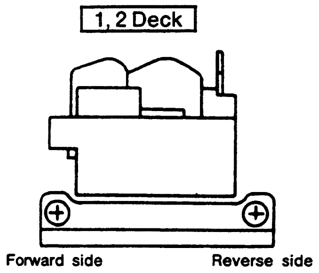
⑤ Be sure to connect a 47 load resistor to LINE OUT.

2. **Playback adjustments**

2-1 Azimuth adjustment

Play back the (TEAC MTT-114) test tape and turn the azimuth adjustment scrw to yield maximum values for the left and right channels. Lock the screw.





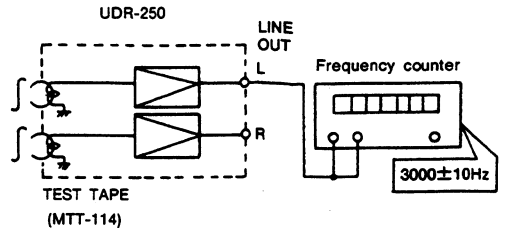
2-2 Tape speed check and adjustment

- **Connect the frequency counter to LINE OUT Terminal.**

① Play the test tape (MTT-111) on deck 2 and once tape transport has stabilized, adjust normal-speed-adjustment variable resistor (motor Variable Resistor) to yield 3,000 Hz ± 10 Hz.

② Using the same procedure on deck 1, adjust variable resistor (motor Variable Resistor).

NOTE: Use the central portion of the test tape; not the beginning or end of the winding.



2-3 Playback level check and adjustment

Play a Dolby reference level tape (TEAC MTT-150) and check that the voltage of the left and right monitor outputs of LINE OUT on the 1U-2479-3 deck board is within 400 mV ± 1 dB.

If it is not within this range, the playback level requires adjustment.

NOTE: When adjusting deck 1, the playback level of deck 2 also changes; therefore, the playback level of deck 2 should be readjusted.

- For deck 1, adjust: VR703 (Left channel), and VR704 (right channel)
- For deck 2, adjust: VR701 (Left channel), and VR702 (right channel)

Caution: Always adjust the playback level starting from the left deck first.

3. **Recording adjustments (deck 2 only)**

3-1 Overall frequency response adjustment for recording and playback

Load a blank DENON HDX/60 tape for adjustment purposes and record and play it back, adjusting the input attenuators of the 1 kHz and 10 kHz signals to yield a left and right monitor output voltage of 40 mVat LINE OUT of the 1U-2479-3 deck board. Adjust so that the 10 kHz level is about+0.5 dB with respect to 1 kHz, and the overall response is within the range shown in the diagram below.

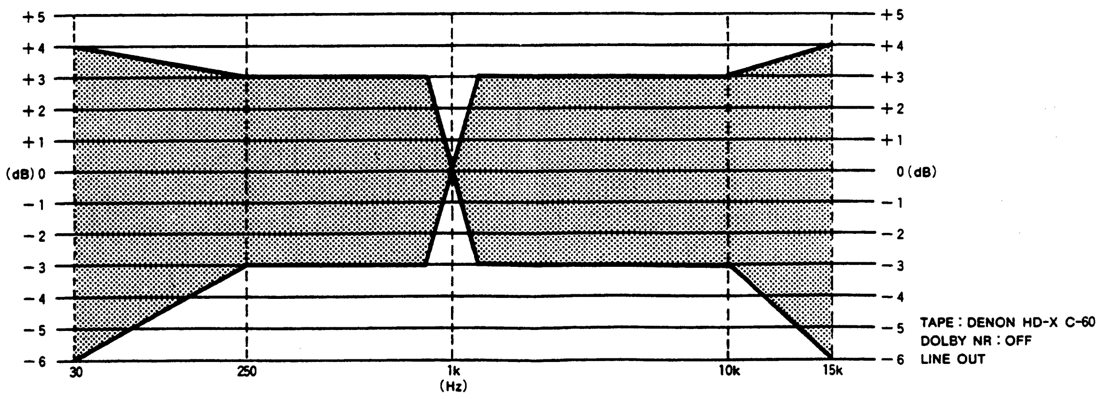
- If the 10 kHz output is larger than the 1 kHz output, turn VR707 (left channel) and VR708 (right channel) counterclockwise, and if it is smaller, turn these controls clockwise.

3-2 Recording level check and adjustment

Load a blank DENON HDX/60 tape for adjustment purposes and check that the voltmeter indication is within the 40 mV ± 1 dB range when a 1 kHz signal is recorded and played back.

If it is not within this range, the recording level requires adjustment.

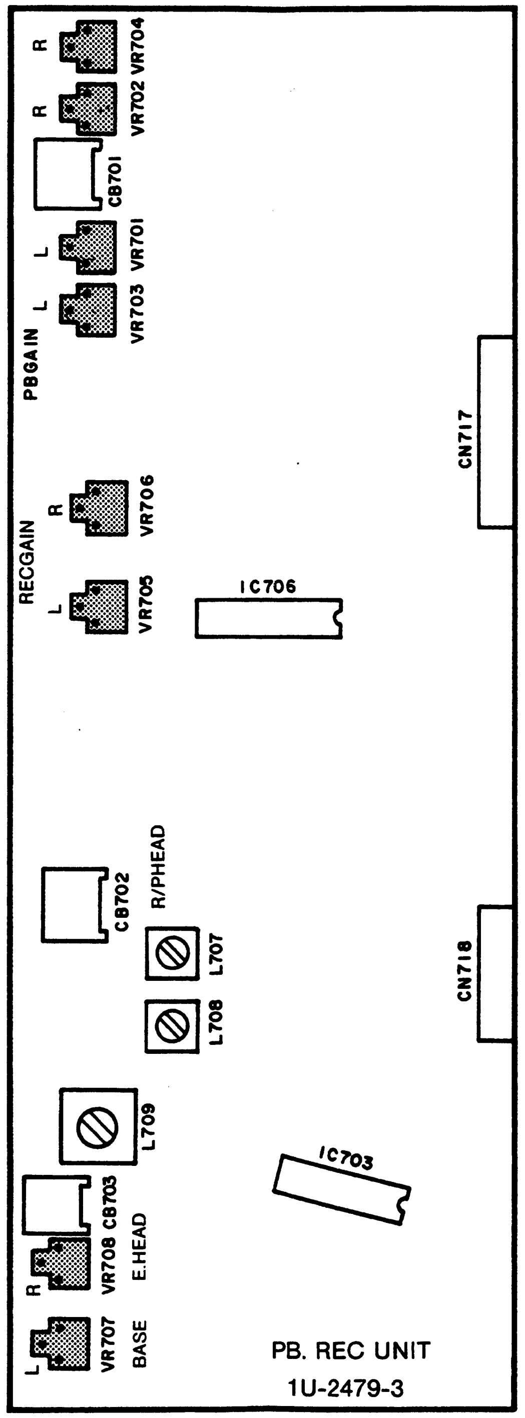
- If the level at the time of playing back the recording is higher than at the time of recording, turn VR705 (left channel) and VR706 (right channel) counterclockwise, and if lower, turn these controls clockwise.



CASSETTE DECK SECTION

OUTLINE DIAGRAM OF ADJUSTMENT LOCATIONS

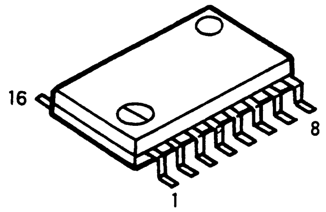
1U-2479-3 PB, REC UNIT ASS'Y (Component Side)

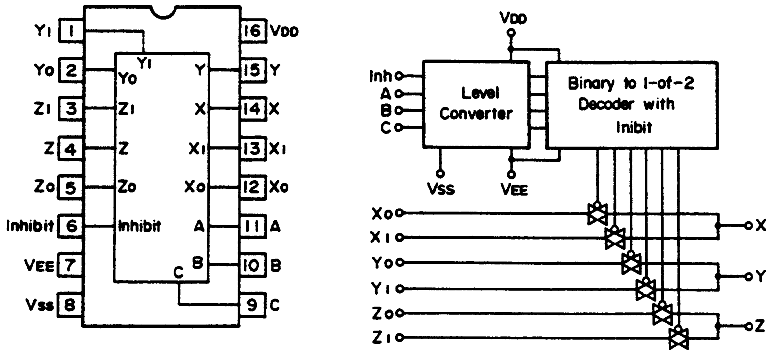

R
VR704
R
VR702
CB701
L
VR701
L
VR703
PBGAIN
CN717
RECGAIN
R
VR706
L
VR705
IC706
CB702
R/PHEAD
L707
L708
CN718
L709
IC703
CB703
R
VR708
E.HEAD
L
VR707
BASE
PB. REC UNIT
1U-2479-3

SEMICONDUCTORS

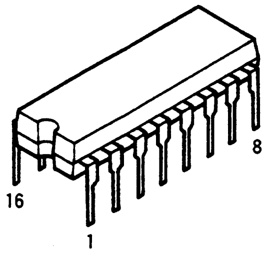
● IC

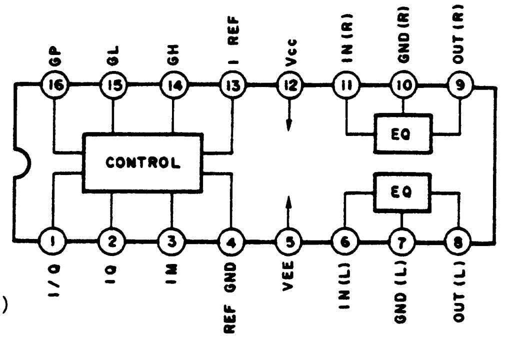
HD14053BFP (IC701)



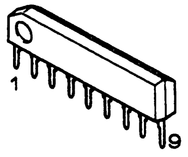

Y1 1
Y0 2
Z1 3
Z 4
Z0 5
Inhibit 6
VEE 7
Vss 8
16 VDD
15 Y
14 X
13 X1
12 X0
11 A
10 B
9 C
Y1
Y0
Z1
Z
Z0
Inhibit
Y
X
X1
X0
A
B
C
VDD
Inh
A
B
C
Level Converter
Binary to 1-of-2 Decoder with Inibit
Vss
VEE
X0
X1
Y0
Y1
Z0
Z1
X
Y
Z

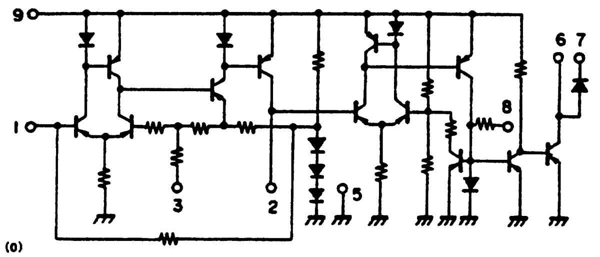
CXA1198AP (IC706)



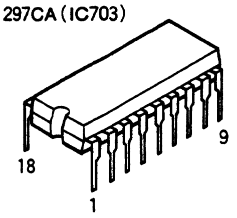

GP 16
GL 15
GH 14
I REF 13
Vcc 12
IN (R) 11
GND (R) 10
OUT (R) 9
CONTROL
EQ
EQ
1 I/O
2 IQ
3 IM
4 REF GND
5 VEE
6 IN (L)
7 GND (L)
8 OUT (L)

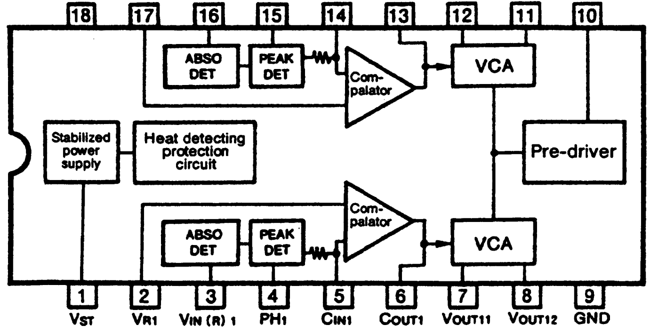
LA2000 (IC704)



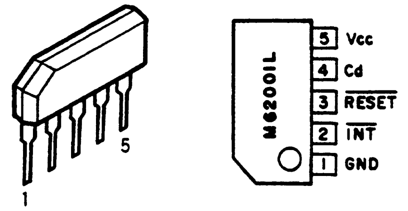


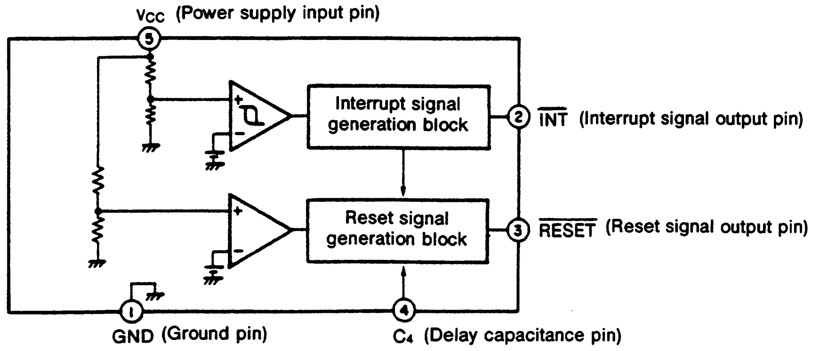
μ PC1297CA (IC703)




Vcc 18
VR1 17
VVIN (R) 2 16
PH2 15
CIN2 14
COUT2 13
COUT21 12
VOUT22 11
VIM (O) 10
ABSO DET
PEAK DET
Com-palator
VCA
Stabilized power supply
Heat detecting protection circuit
Pre-driver
Com-palator
ABSO DET
PEAK DET
VCA
1 VST
2 VR1
3 VIN (R) 1
4 PH1
5 CIN1
6 COUT1
7 VOUT11
8 VOUT12
9 GND

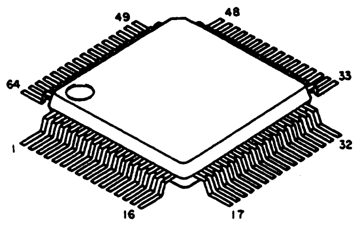
M62005L (IC712)

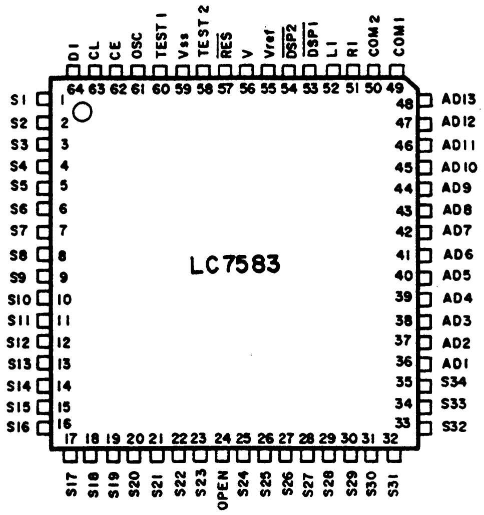

5
1
M62005L
5 Vcc
4 Cd
3 RESET
2 INT
1 GND

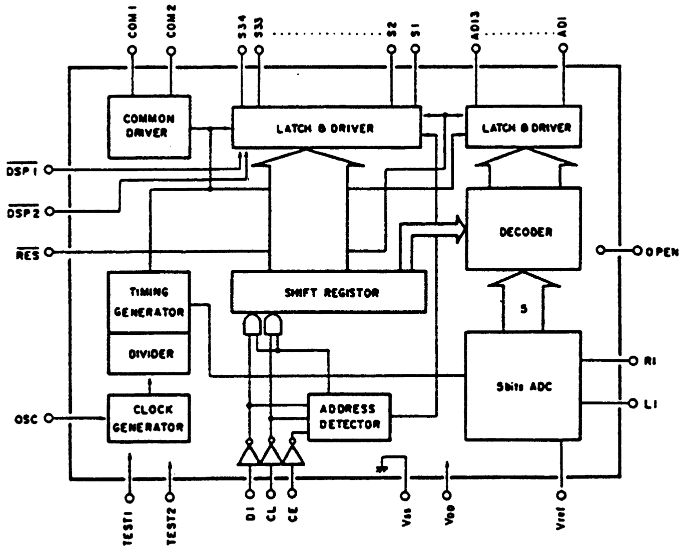

Vcc (Power supply input pin)
5
Interrupt signal generation block
2 INT (Interrupt signal output pin)
Reset signal generation block
3 RESET (Reset signal output pin)
1
GND (Ground pin)
4
C4 (Delay capacitance pin)

CASSETTE DECK SECTION

LC7583 (IC709)
LCD driver with level meter


49
48
64
33
1
32
16
17

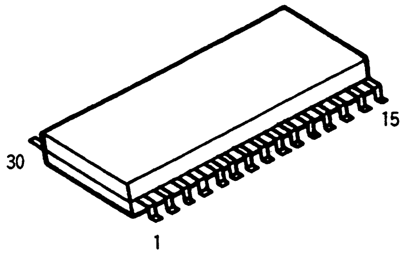

LC7583
DI
CL
CE
OSC
TEST 1
Vss
TEST 2
RES
V
Vref
DSP2
DSP1
L1
R1
COM 2
COM 1
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
AD13
AD12
AD11
AD10
AD9
AD8
AD7
AD6
AD5
AD4
AD3
AD2
AD1
S34
S33
S32
S17
S18
S19
S20
S21
S22
S23
OPEN
S24
S25
S26
S27
S28
S29
S30
S31

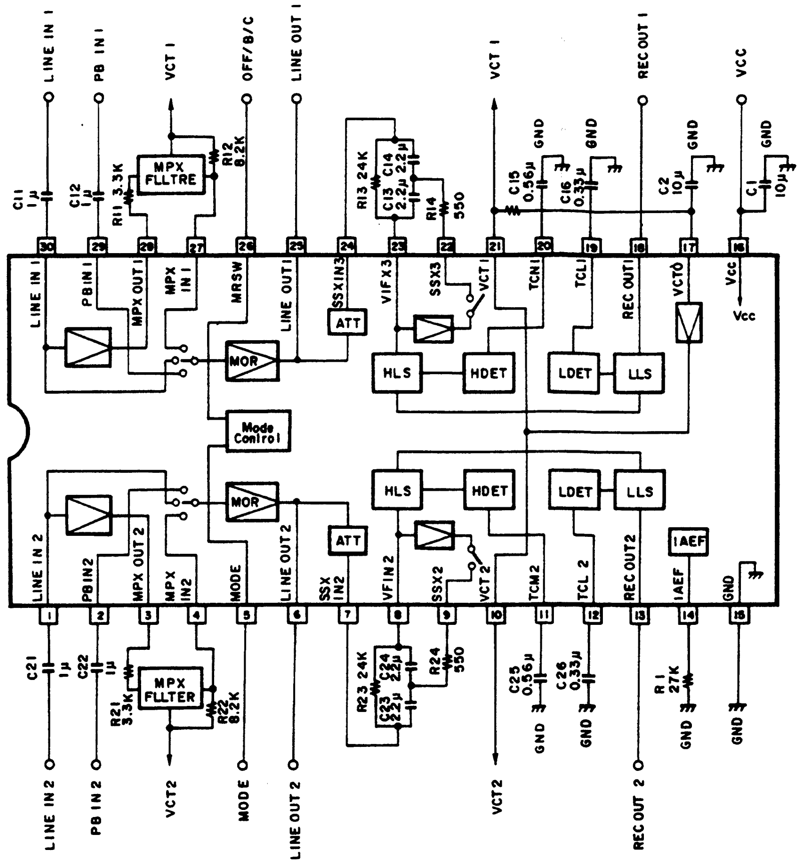

COM1
COM2
S34
S33
S2
S1
AD13
AD1
COMMON DRIVER
LATCH & DRIVER
LATCH & DRIVER
DSP1
DSP2
RES
DECODER
OPEN
TIMING GENERATOR
SHIFT REGISTOR
DIVIDER
5
5bits ADC
R1
L1
OSC
CLOCK GENERATOR
ADDRESS DETECTOR
TEST1
TEST2
DI
CL
CE
Vss
VDD
Vref

Pin Description

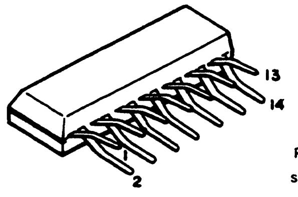
Pin	Pin No.	Description	Active	I/O
S1~S33	1~34	Segment outputs which display the data transferred from the serial data.	–	O
S34	35	Segment output which displays the external input ($\overline{\text{DSP1}}$, $\overline{\text{DSP2}}$) information.	–	O
AD1~AD13	36~48	Segment outputs which display the ADC input (R1, L1) information. Three kinds of patterns are output depending on the control bits "A1", and "A2". AD1 is the minimum lighting level, and AD13 is the maximum lighting level.	–	O
COM1 COM2	49 50	With the common driver output, the frame frequency is $\frac{\text{fosc}}{512}$ Hz.	–	O
R1 L1	51 52	AD converter input pins.	Analog	I
$\overline{\text{DSP1}}$ $\overline{\text{DSP2}}$	53 54	These are input pins for the direct (external input) display, and their segment output is output from S34.	L	I
Vref	55	Reference power supply pin of the AD converter.	–	–
V_{DD} Vss	56 59	Power supply pins.	–	–
$\overline{\text{RES}}$	57	This pin forcefully switches off the display in the initial condition.	L	I
TEST2	58	To be used in the open condition.	–	O
TEST1	60	To be used open or with Vss.	–	I
CE	62	Pins for serial data transfer. Connected with the controller. (microprocessor). CE: Chip enable	H	I
CL	63	CL: Sync clock	⌐	
DI	64	DI: Transfer data	–	
OPEN	24	No connection.	–	–

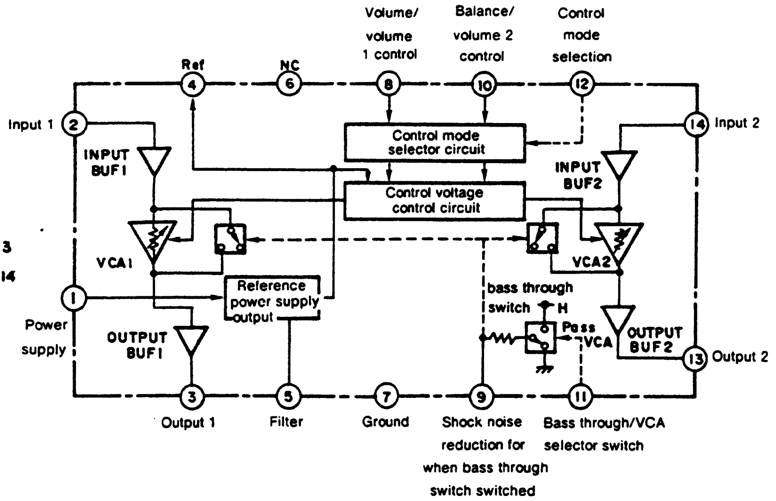
CXA1331M (IC705)



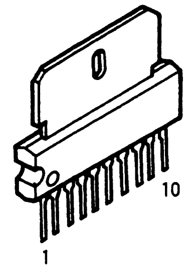

LINE IN 1
PB IN 1
VCT 1
OFF/B/C
LINE OUT 1
VCT 1
REC OUT 1
Vcc
GND
C11 1μ
C12 1μ
R11 3.3K
MPX FILLTRE
R12 8.2K
R13 24K
C13 2.2μ
C14 2.2μ
R14 550
C15 0.56μ
C16 0.33μ
C2 10μ
C1 10μ
LINE IN 1
PB IN 1
MPX OUT 1
MPX IN 1
MRSW
LINE OUT 1
SSXIN3
VIFX3
SSX3
VCT 1
TCN1
TCL1
REC OUT 1
VCTO
Vcc
ATT
MOR
HLS
HDET
LDET
LLS
Mode Control
IAEF
LINE IN 2
PBIN2
MPX OUT 2
MPX IN2
MODE
LINE OUT 2
SSX IN2
VFIN 2
SSX2
VCT 2
TCM2
TCL 2
REC OUT2
IAEF
GND
C21 1μ
C22 1μ
R21 3.3K
MPX FLLTER
R22 8.2K
R23 24K
C23 2.2μ
C24 2.2μ
R24 550
C25 0.56μ
C26 0.33μ
R1 27K
LINE IN 2
PB IN 2
VCT2
MODE
LINE OUT 2
VCT2
REC OUT 2
GND

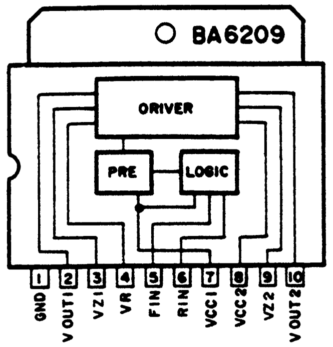
M51131L (IC707)



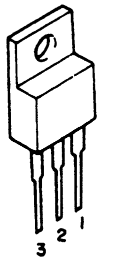

Volume/ volume 1 control
Balance/ volume 2 control
Control mode selection
Ref
NC
Input 1
Input 2
INPUT BUF1
INPUT BUF2
Control mode selector circuit
Control voltage control circuit
VCA1
VCA2
Reference power supply output
bass through switch
H
Pass
VCA
Power supply
OUTPUT BUF1
OUTPUT BUF2
Output 2
Output 1
Filter
Ground
Shock noise reduction for when bass through switch switched
Bass through/VCA selector switch
1
2
3
4
5
6
7
8
9
10
11
12
13
14

BA6209 (IC710, 711)
Reversible motor driver
(2 circuits built in)



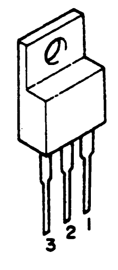

BA6209
DRIVER
PRE
LOGIC
GND
VOUT1
VZ1
VR
FIN
RIN
VCC1
VCC2
VZ2
VOUT2
1
2
3
4
5
6
7
8
9
10

NJM78M06FA (S) (IC715)
NJM78M08FA (S) (IC716)
NJM78M12FA (S) (IC714)
(Three-terminal positive
constant voltage power supply



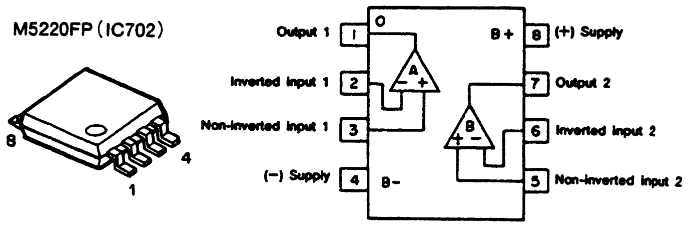
1 : Output
2 : GND
3 : Input

NJM79M08FA (IC717)
(Three-terminal negative
constant voltage power supply)

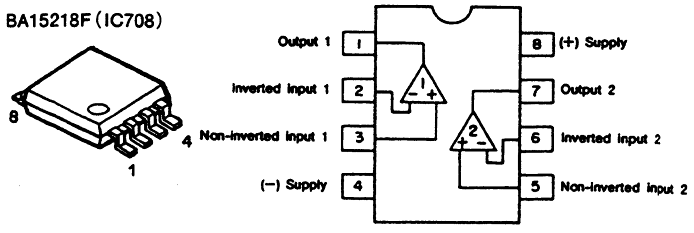


1 : Output
2 : Input
3 : GND

M5220FP (IC702)


8
4
1
Output 1
Inverted input 1
Non-inverted input 1
(–) Supply
B+
B-
A
B
(+) Supply
Output 2
Inverted input 2
Non-inverted input 2
1
2
3
4
5
6
7
8

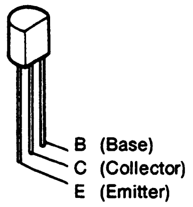
BA15218F (IC708)


8
4
1
Output 1
Inverted input 1
Non-inverted input 1
(–) Supply
(+) Supply
Output 2
Inverted input 2
Non-inverted input 2
1
2
3
4
5
6
7
8

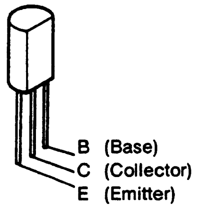
CASSETTE DECK SECTION

● Transistors

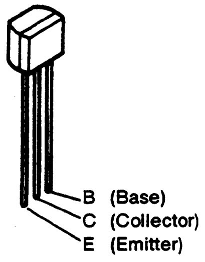
2SD1111
2SA933S(S)


B (Base)
C (Collector)
E (Emitter)

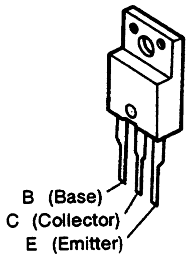
2SB562(C)


B (Base)
C (Collector)
E (Emitter)

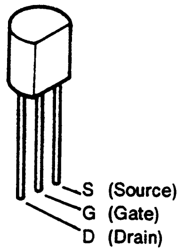
2SC1740S

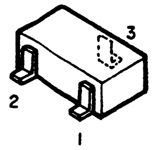

B (Base)
C (Collector)
E (Emitter)

2SC3852


B (Base)
C (Collector)
E (Emitter)

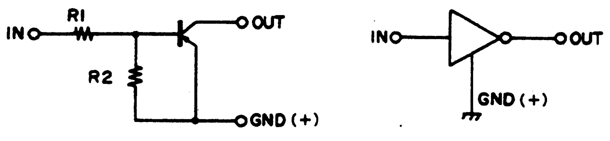
2SK373(Y) (FET)


S (Source)
G (Gate)
D (Drain)



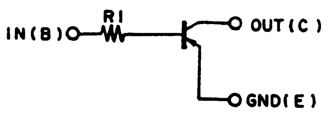
1 : GND / Emitter
2 : In / Base
3 : Out / Collector

DTAEK Series


IN
R1
OUT
R2
GND (+)
IN
OUT
GND (+)

	R1	R2
DTA114EK	10k ohm	10k ohm

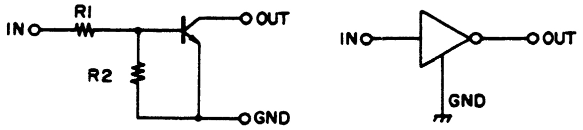
DTCTK Series


IN (B)
R1
OUT (C)
GND (E)

	R1
DTC114TK	10k ohm
DTC323TK	2.2k ohm

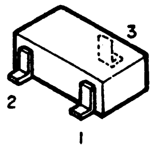
DTA114EK
DTC114EK
DTC124EK
DTC144EK
DTC114TK
DTC323TK

DTCEK Series


IN
R1
OUT
R2
GND
IN
OUT
GND

	R1	R2
DTC114EK	10k ohm	10k ohm
DTC124EK	22k ohm	22k ohm
DTC144EK	47k ohm	47k ohm

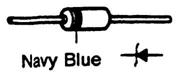
2SC2412K(S)



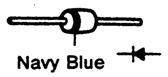
1 : GND / Emitter
2 : In / Base
3 : Out / Collector

● Diodes (including LED)

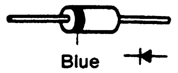
HZS3A-1
HZS4A-1
HZS6A-1
HZS6C-1
HZS7C-1
HZS9B-1
HZS12A-1



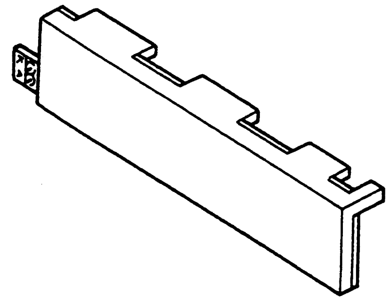
1SS270A



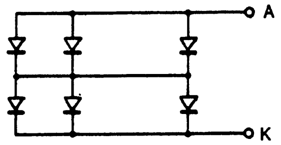
1SR35-200A



LED (SLF-351D)
Part No. 3939470009



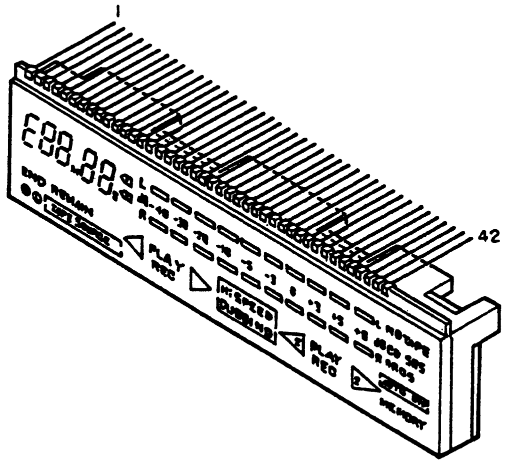
● Connection

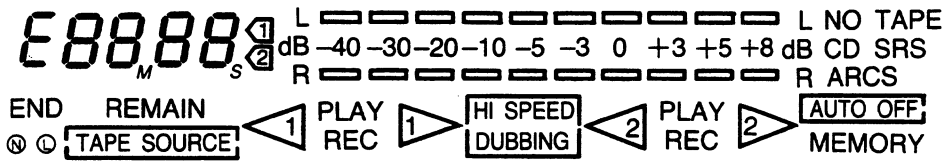


2 Series 22 Para = 44 Chip

● LCD ASS'Y (8235JP)

Part No. 3934143001




E8888
M
S
1
2
L
dB -40 -30 -20 -10 -5 -3 0 +3 +5 +8 dB
R
L NO TAPE
CD SRS
R ARCS
END REMAIN
Ⓝ Ⓛ TAPE SOURCE
1 PLAY REC 1
HI SPEED DUBBING
2 PLAY REC 2
AUTO OFF
MEMORY

NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
COM1	COM	—	REC 2)	◁2	HI SPEED	REC 1)	◁1	SOURCE	Ⓝ	END	TAPE SOURCE	g	1e	1a
COM2	—	COM	2▷	PLAY 2)	DUBBING	1▷	PLAY 1)	TAPE	Ⓛ	REMAIN	[	M. S	1d	1f

NO.	15	16	17	18	19	20	21	22	23	24	25	26	27	28
COM1	1b	1c	2f	2a	2c	3e	3a	3b	3c	4f	4a	4c	◁1	L DB R (A)
COM2	1g	2e	2g	2b	2d	3d	3f	3g	4e	4g	4b	4d	◁2	-40 -30

NO.	29	30	31	32	33	34	35	36	37	38	39	40	41	42
COM1	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	♯1	NO TAPE	MEMORY	OFF
COM2	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	L DB R (A)	CD SRS	ARCS	AUTO

MICROPROCESSOR DOCUMENTATION

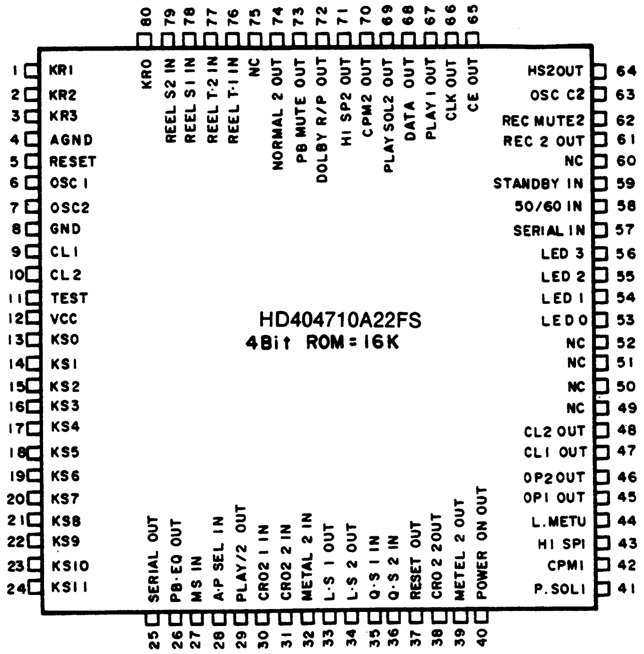
● Control Circuits for the Deck

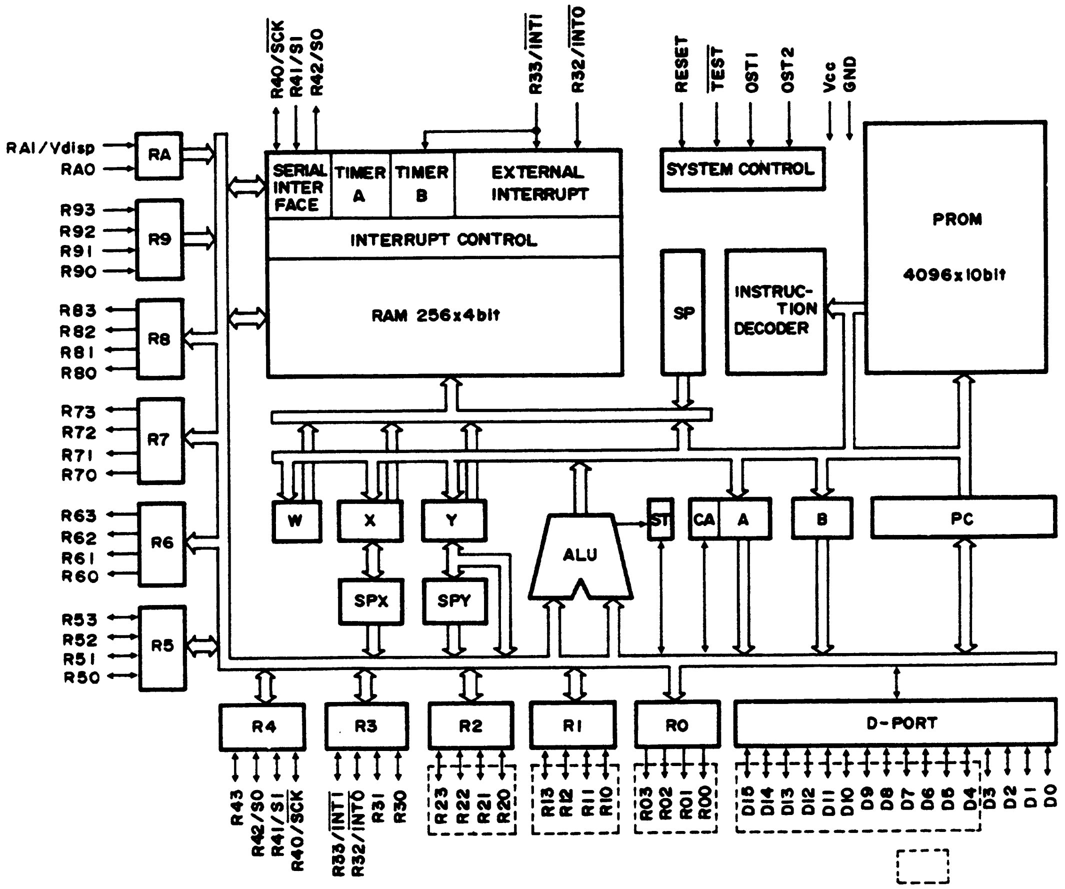
HD404710A22FS: 2621626104 (IC713)

(CMOS 4-bit single-chip microprocessor)

● Main Functions

- Deck Control
  1. Control output for deck mechanism control and signal circuits
  2. Twin reverse: playback · recording
  3. Cuing operation, continuous play
  4. Regular speed tape copying
  5. CD syncro operation
  6. Edit operation
  7. Auto function operation
  8. Real time counter
  9. Auto power on/off operation
  10. Tape end indication
  11. LCD display control


HD404710A22FS
4Bit ROM=16K
1 KR1
2 KR2
3 KR3
4 AGND
5 RESET
6 OSC 1
7 OSC2
8 GND
9 CL1
10 CL2
11 TEST
12 VCC
13 KS0
14 KS1
15 KS2
16 KS3
17 KS4
18 KS5
19 KS6
20 KS7
21 KS8
22 KS9
23 KS10
24 KS11
25 SERIAL OUT
26 PB·EQ OUT
27 MS IN
28 A·P SEL IN
29 PLAY/2 OUT
30 CRO2 1 IN
31 CRO2 2 IN
32 METAL 2 IN
33 L·S 1 OUT
34 L·S 2 OUT
35 Q·S 1 IN
36 Q·S 2 IN
37 RESET OUT
38 CRO 2 2OUT
39 METEL 2 OUT
40 POWER ON OUT
41 P.SOL1
42 CPM1
43 HI SP1
44 L.METU
45 OP1 OUT
46 OP2 OUT
47 CL1 OUT
48 CL2 OUT
49 NC
50 NC
51 NC
52 NC
53 LED 0
54 LED 1
55 LED 2
56 LED 3
57 SERIAL IN
58 50/60 IN
59 STANDBY IN
60 NC
61 REC 2 OUT
62 REC MUTE2
63 OSC C2
64 HS2OUT
65 CE OUT
66 CLK OUT
67 PLAY 1 OUT
68 DATA OUT
69 PLAY SOL2 OUT
70 CPM2 OUT
71 HI SP2 OUT
72 DOLBY R/P OUT
73 PB MUTE OUT
74 NORMAL 2 OUT
75 NC
76 REEL T·1 IN
77 REEL T·2 IN
78 REEL S1 IN
79 REEL S2 IN
80 KR0


R40/SCK
R41/SI
R42/SO
R33/INT1
R32/INT0
RESET
TEST
OST1
OST2
Vcc
GND
RA1/Vdisp
RA0
RA
R93
R92
R91
R90
R9
R83
R82
R81
R80
R8
R73
R72
R71
R70
R7
R63
R62
R61
R60
R6
R53
R52
R51
R50
R5
SERIAL INTER FACE
TIMER A
TIMER B
EXTERNAL INTERRUPT
INTERRUPT CONTROL
RAM 256x4bit
SYSTEM CONTROL
SP
INSTRUC-TION DECODER
PROM
4096x10bit
W
X
Y
SPX
SPY
ALU
ST
CA
A
B
PC
R4
R3
R2
R1
R0
D-PORT
R43
R42/SO
R41/SI
R40/SCK
R33/INT1
R32/INT0
R31
R30
R23
R22
R21
R20
R13
R12
R11
R10
R03
R02
R01
R00
D15
D14
D13
D12
D11
D10
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0

● Pin Description

Pin No.	Pin Name	Function Name	Function
1	RD1/AN5	KR 1	Key return 1 input
2	RD2/AN6	KR 2	Key return 2 input
3	RD3/AN7	KR 3	Key return 3 input
4	AGND		Ground (In)
5	RESET	RESET	Reset input
6	OSC1		4 MHz Cell lock
7	OSC2		4 MHz Cell lock
8	GND		Ground
9	CL1	NC	Ground (In)
10	CL2	NC	Open
11	TEST	NC	5 V
12	VCC		5 V
13	D 0	KS 0	Key strobe 0 output
14	D 1	KS 1	Key strobe 1 output
15	D 2	KS 2	Key strobe 2 output
16	D 3	KS 3	Key strobe 3 output
17	D 4	KS 4	Key strobe 4 output
18	D 5	KS 5	Key strobe 5 output
19	D 6	KS 6	Key strobe 6 output
20	D 7	KS 7	Key strobe 7 output
21	D 8	KS 8	Key strobe 8 output
22	D 9	KS 9	Key strobe 9 output
23	D10	KS10	Key strobe 10 output
24	D11	KS11	Key strobe 11 output
25	D12	SERIAL OUT	Serial communications output
26	D13	PB.EQ OUT	Playback equalizer switching output 120 = L、70 = H
27	D14	MS IN	Inter track detection signal input (Active = L)
28	D15	A.P. SEL IN	Auto power on/off switching High = Auto power on/off is performed Low = Auto power on/off is not performed
29	R00	PLAY 1/2 OUT	Output which indicates the play condition of the mechanisms Mechanism 1 playing = L Mechanism 2 playing = H
30	R01	CROM 1 IN	Mechanism 1 tape type detection input
31	R02	CROM 2 IN	Mechanism 2 tape type detection input
32	R03	METAL 2 IN	Mechanism 2 tape type detection input
33	R10	L.SPEED 1 OUT	Loading speed control output
34	R11	L.SPEED 2 OUT	Loading speed control output
35	R12	Q.SENSE 1 IN	Quick sense input of tape 1 (Active = L)
36	R13	Q.SENSE 2 IN	Quick sense input of tape 2 (Active = L)
37	R20	RESET OUT	Control output for 4 seconds following reset
38	R21	CROM 2 OUT	Output which switches the recording equalization of tape 2 to chrome
39	R22	METAL 2 OUT	Output which switches the recording equalization of tape 2 to metal
40	R23	POWER ON OUT	Power on/off control output On = High Off = Low

CASSETTE DECK SECTION

Pin No.	Pin Name	Function Name	Function
41	R30	PLAY SOL1 OUT	Output which drives the solenoid of mechanism 1
42	R31	CPM 1 OUT	Output which drives the capstan motor of mechanism 1
43	R32	HI-SP 1 OUT	Switches the speed of the capstan motor of mechanism 1 at the time of high-speed tape copying
44	R33	LINE MUTE OUT	Playback output muting pin
45	R40	OPEN 1 OUT	Output for opening the loader of mechanism 1
46	R41	OPEN 2 OUT	Output for closing the loader of mechanism 2
47	R42	CLOSE 1 OUT	Output for opening the loader of mechanism 1
48	R43	CLOSE 2 OUT	Output for closing the loader of mechanism 2
49	R50/Vdisp	NC	Ground (In)
50	R51	NC	Ground (In)
51	R52	NC	Ground (In)
52	R53	NC	Ground (In)
53	R60/COMP	LED0	Output pin for mode display drive (Active = L)
54	R61/Vref	LED1	Output pin for mode display drive (Active = L)
55	R62/TOE1	LED2	Output pin for mode display drive (Active = L)
56	R63/TOE2	LED3	Output pin for mode display drive (Active = L)
57	R70/INT0	SERIAL IN	Serial communications input
58	R71/INT1	50/60 IN	50 Hz/60 Hz pulse input
59	R72/INT2	STANDBY IN	Input which sets the microcomputer to the standby mode
60	R73/INT3	NC	Ground (In)
61	R80/INT4	REC 2 OUT	Tape 2 record mode output
62	R81/INT5	REC MUTE 2 OUT	Tape 2 recording amplifier muting output
63	R82/SO1	OSC CONT2 OUT	Tape 2 bias oscillator control output
64	R83/SI1	HI-SP REC2 OUT	Time constant switching output at the time of high-speed tape copying
65	R90/SCK1	LCDCE OUT	LCD CE output
66	R91/SCK2	LCDCLK OUT	LCD clock output
67	R92/SI2	PLAY 1 OUT	Play 1 output
68	R93/SO2	LCDDATA OUT	LCD data output
69	RA0/ICT0	PLAY SOL2 OUT	Output which drives the solenoid of mechanism 2
70	RA1/ICT2	CPM2 OUT	Output which drives the capstan motor of mechanism 2
71	RA2/TOG	HI-SP 2 OUT	Switches the speed of the capstan motor of mechanism 2 at the time of high-speed tape copying
72	RA3/BUZZ	DOLBY R/P OUT	Dolby record/playback switching output
73	RB0/TOC	PB MUTE OUT	Playback equalizer muting output
74	RB1/TOG	NORMAL 2 OUT	Normal 2 output
75	AVCC	NC	5 V
76	RC0/AN0	REEL.T.1 IN	Reel pulse take-up 1 input
77	RC1/AN1	REEL.T.2 IN	Reel pulse take-up 2 input
78	RC2/AN2	REEL.S.1 IN	Reel pulse supply 1 input
79	RC3/AN3	REEL.S.2 IN	Reel pulse supply 2 input
80	RD0/AN4	KR0	Key return 0 input

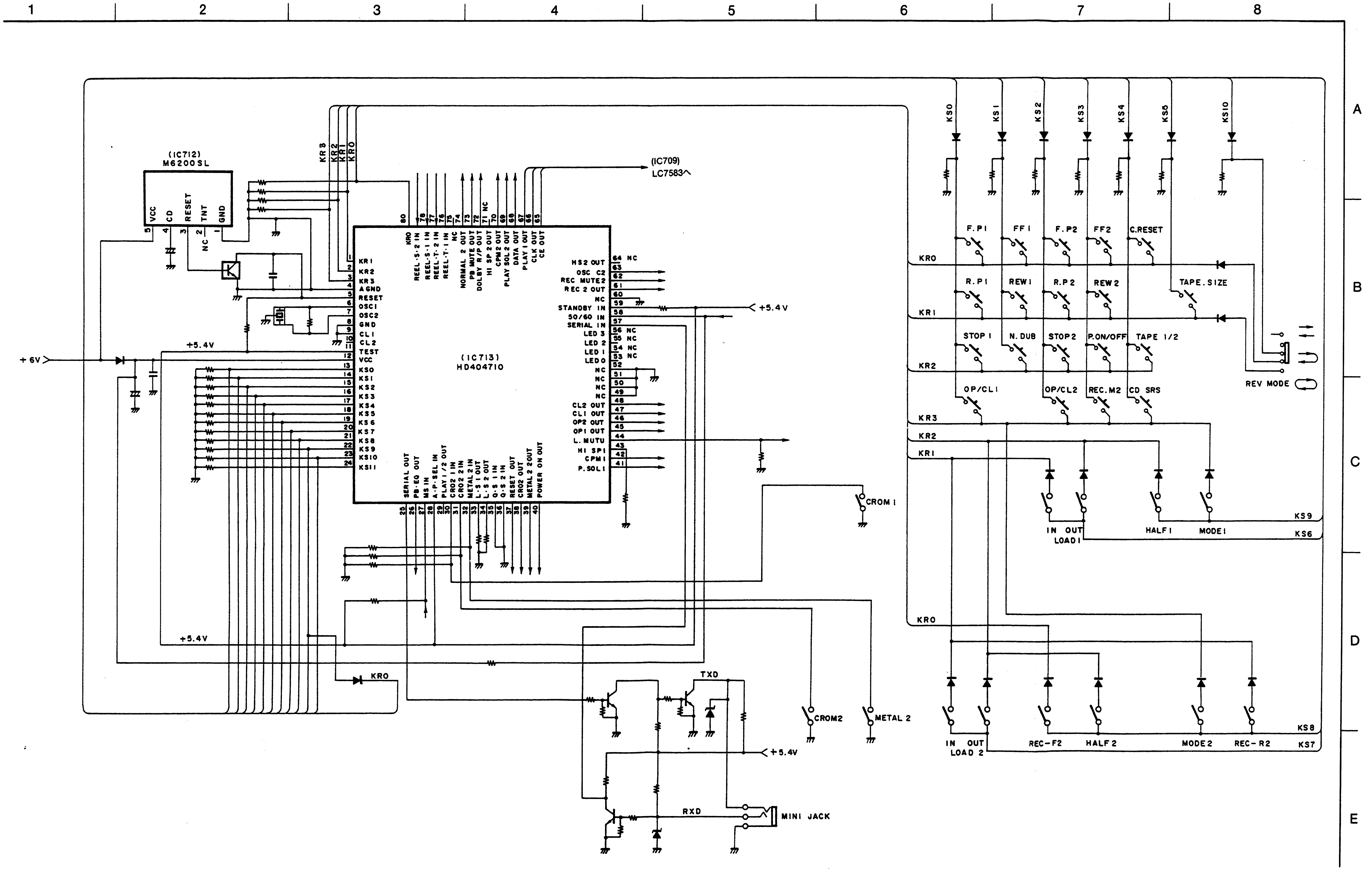
● Button Input Description

Item	Button Name	Description of Function
1	F. PLAY	Commands the forward direction play mode. Commands the cue/revue mode with one-touch play operations of PLAY + REW/FF, or FF/REW during the play mode.
2	R. PLAY	Commands the play mode of the reverse direction. The one-touch play operations of the cue/revue mode are the same as with F. PLAY.
3	F. F	Commands the tape to be wound quickly in the right direction.
4	REW	Commands the tape to be wound quickly in the left direction.
5	STOP	Commands the stop mode. When there has been input from this button, there will be a change to the stop mode from whichever mode is currently set.
6	OPEN/CLOSE	Commands the open/close mode of the cassette tray. The open/close mode is switched cyclicly with the input of this button. This is a toggle operation. When there is input from this button with the power off, the power is switched on and there is then a shift to the open mode.
7	F. PLAY	Commands the forward direction play mode. Commands the cue/revue mode with one-touch play operations of PLAY + REW/FF, or FF/REW during the play mode.
8	R. PLAY	Commands the play mode of the reverse direction. The one-touch play operations of the cue/revue mode are the same as with F. PLAY.
9	F. F	Commands the tape to be wound quickly in the right direction.
10	REW	Commands the tape to be wound quickly in the left direction.
11	STOP	Commands the stop mode. When there has been input from this button, there will be a change to the stop mode from whichever mode is currently set.
12	OPEN/CLOSE	Commands the open/close mode of the cassette tray. The open/close mode is switched cyclicly with the input of this button. This is a toggle operation. When there is input from this button with the power off, the power is switched on and there is then a shift to the open mode.
13	REC/REC MUTE	Commands the record, record pause, and record muting modes. When there is button input in the stop mode, there will be a shift to the record pause mode. When there is button input in the record pause mode, there will be a shift to the record mute mode. When switched on simultaneously with PLAY, or when there is PLAY button input in the record pause mode, there will be a shift to the record mode. The conditions of the record mode must be satisfied.
14	COUNTER RESET	Resets the counter to "0000".
15	COUNTER 1/2	This key selects the counter display for either deck 1 or deck 2.
16	TAPE SIZE	Inputs the time of the tape length. Toggle operation.
17	POWER	Commands the power on/off mode of the set.
18	DUBBING	Records from deck 1 to deck 2.
19	CD SRS	Commands the CD SRS operation.

● Description of Switch Inputs

Item	Switch Name	Description of Function
1	REVERSE	Commands the one side or two side recording/playback modes and the endless playback mode.
2	DOLBY NR	Commands Dolby (B/C) on/off.

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

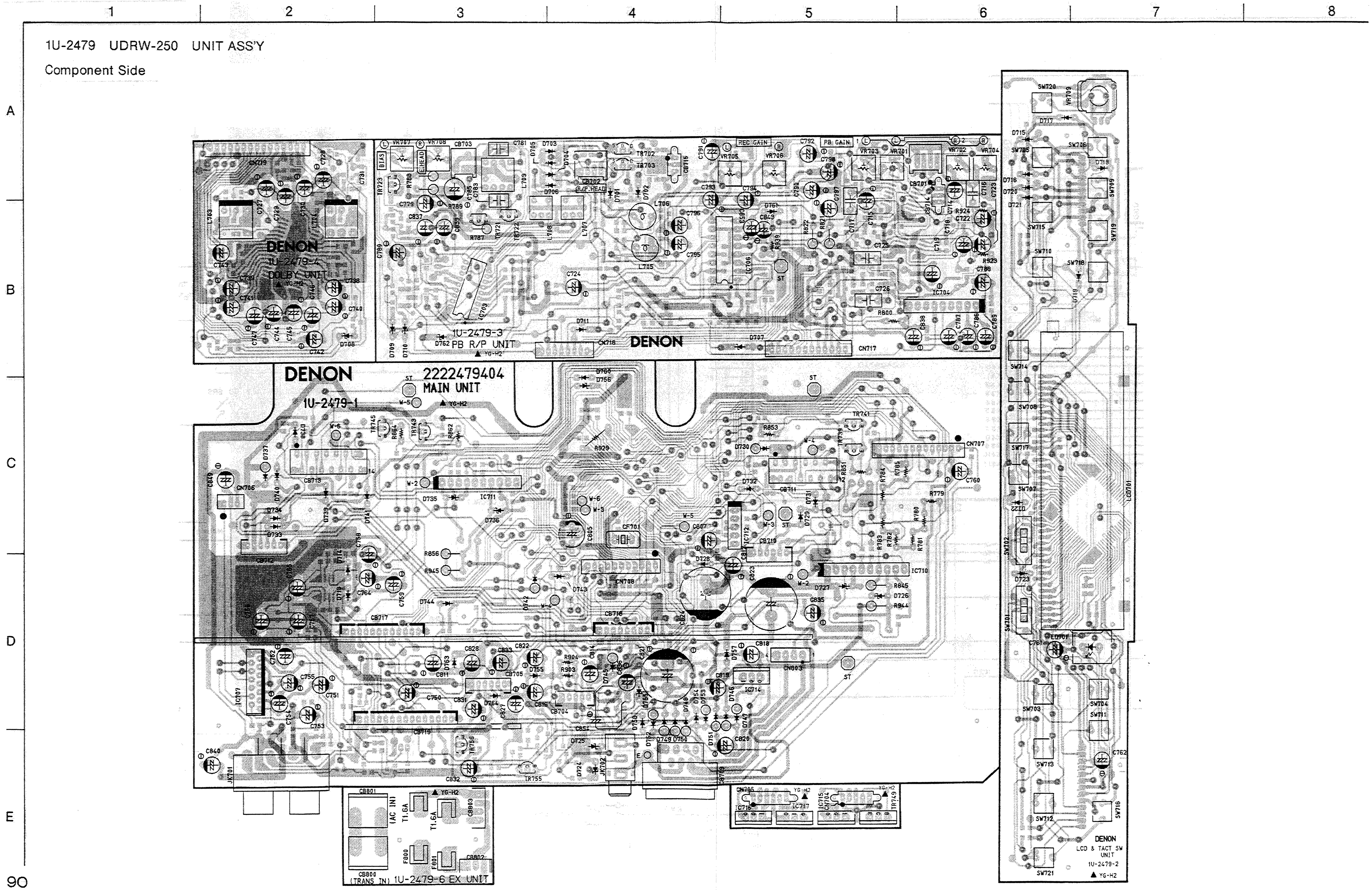

1
2
3
4
5
6
7
8
A
B
C
D
E
(IC712)
M6200SL
VCC
CD
RESET
TNT
GND
NC
(IC713)
HD404710
(IC709)
LC7583へ
KR3
KR2
KR1
KR0
KR1
KR2
KR3
A GND
RESET
OSC1
OSC2
GND
CL1
CL2
TEST
VCC
KS0
KS1
KS2
KS3
KS4
KS5
KS6
KS7
KS8
KS9
KS10
KS11
REEL·S·2 IN
REEL·S·1 IN
REEL·T·2 IN
REEL·T·1 IN
NORMAL 2 OUT
PB MUTE OUT
DOLBY R/P OUT
HI SP 2 OUT
CPM2 OUT
PLAY SOL 2 OUT
DATA OUT
PLAY 1 OUT
CLK OUT
CE OUT
HS2 OUT
OSC C2
REC MUTE2
REC 2 OUT
STANDBY IN
50/60 IN
SERIAL IN
LED 3
LED 2
LED 1
LED 0
CL2 OUT
CL1 OUT
OP2 OUT
OP1 OUT
L. MUTU
HI SP1
CPM1
P.SOL1
SERIAL OUT
PB·EQ OUT
MS IN
A·P·SEL IN
PLAY 1/2 OUT
CRO2 1 IN
CRO2 2 IN
METAL 2 IN
L.S 1 OUT
L.S 2 OUT
Q·S 1 IN
Q·S 2 IN
RESET OUT
CRO2 OUT
METAL 2 2OUT
POWER ON OUT
NC
+6V
+5.4V
KR0
TXD
RXD
MINI JACK
CROM 1
CROM2
METAL 2
KS0
KS1
KS2
KS3
KS4
KS5
KS10
F.P1
FF1
F.P2
FF2
C.RESET
R.P1
REW1
R.P2
REW2
TAPE. SIZE
STOP 1
N. DUB
STOP2
P.ON/OFF
TAPE 1/2
OP/CL1
OP/CL2
REC.M2
CD SRS
REV MODE
IN OUT LOAD1
HALF1
MODE1
KS9
KS6
IN OUT LOAD 2
REC-F2
HALF 2
MODE2
REC-R2
KS8
KS7

CASSETTE DECK SECTION

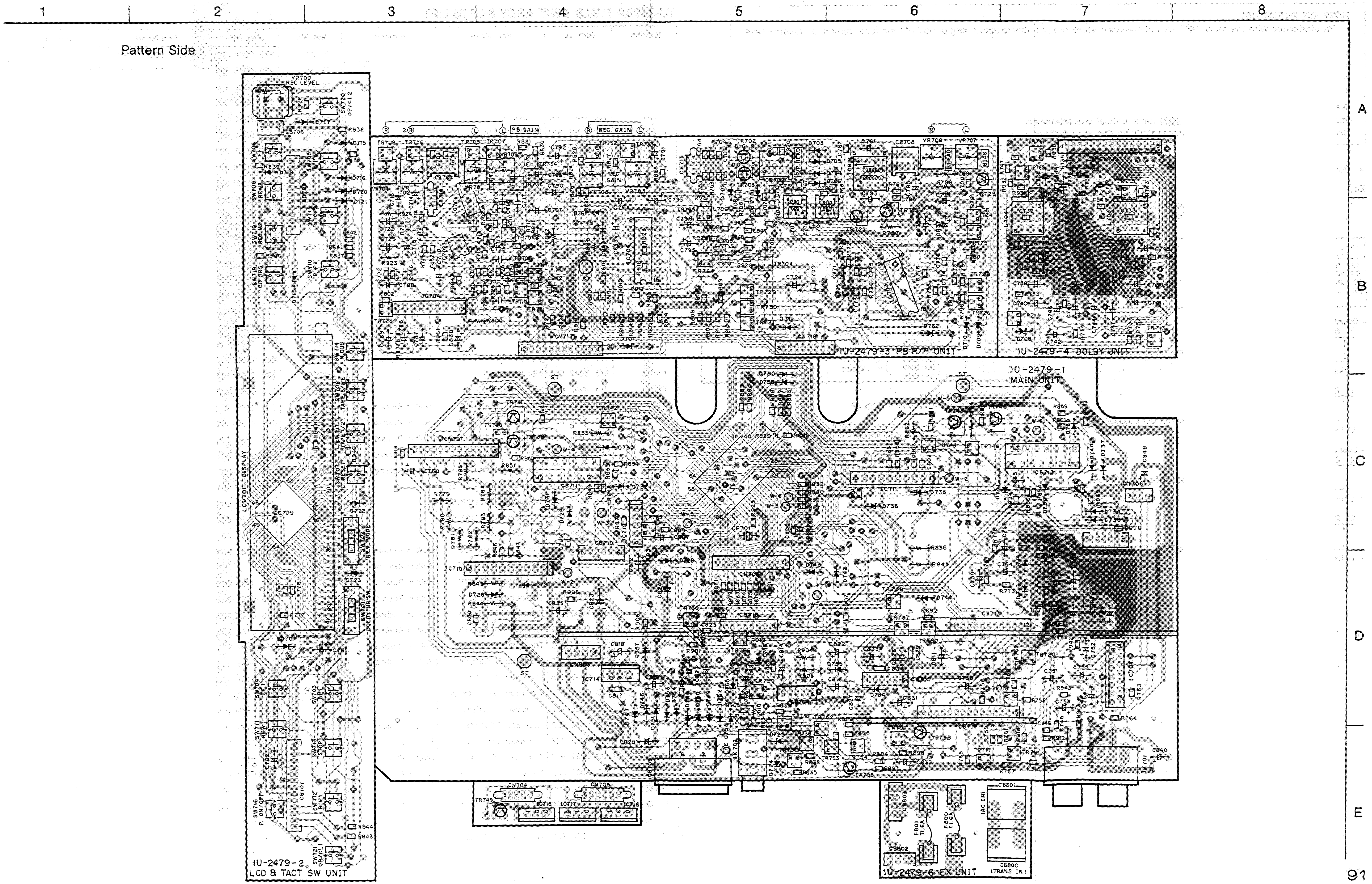
PRINTED WIRING BOARD

1U-2479 UDRW-250 UNIT ASS'Y

Component Side


1
2
3
4
5
6
7
8
A
B
C
D
E
DENON
1U-2479-4
DOLBY UNIT
YG-H2
1U-2479-3
PB R/P UNIT
YG-H2
DENON
REC GAIN
PB GAIN
BIAS
E.HEAD
R/P HEAD
DENON
2222479404
MAIN UNIT
1U-2479-1
YG-H2
CN707
IC710
IC711
CN706
CN708
CN716
CN717
CN803
LCD701
JK701
JK702
CB801
(AC IN)
T1.6A
T1.6A
CB803
F000
F001
CB802
CB800
(TRANS IN)
1U-2479-6 EX UNIT
YG-H2
CN705
IC715
IC717
DENON
LCD & TACT SW UNIT
1U-2479-2
YG-H2

Pattern Side


1
2
3
4
5
6
7
8
A
B
C
D
E
VR709 REC LEVEL
PB GAIN
REC GAIN
1U-2479-3 PB R/P UNIT
1U-2479-4 DOLBY UNIT
1U-2479-1 MAIN UNIT
LCD701 DISPLAY
1U-2479-2 LCD & TACT SW UNIT
1U-2479-6 EX UNIT
(AC IN)
(TRANS IN)
F801 T1.6A
F800 T1.6A

CASSETTE DECK SECTION

NOTE ON PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W. Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.: RN 14K 2E 182 G FR

Type	Shape and performance	Power	Resistance	Allowable error	Others
RN	14K	2E	182	G	FR

Type	Power	Allowable error	Others
RD : Carbon Film	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metallic oxide Film	2H : 1/2W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

※ Resistance

1 8 2 ⇨ 1800 ohm = 1.8 kohm
2 — Indicates number of zeros after effective number
1 8 — 2-digit effective number

• Units: ohm

1 R 2 ⇨ 1.2 ohm
2 — 1-digit effective number.
1 R — 2-digit effective number, decimal point indicated by R.

• Units: ohm

※ Capacity (electrolyte only)

2 2 R ⇨ 2200 µF
R — Indicates number of zeros after effective number.
2 2 — 2-digit effective number.

• Units: µF

2 R 2 ⇨ 2.2 µF
2 — 1-digit effective number.
2 R — 2-digit effective number, decimal point indicated by R.

• Units: µF

• Capacitors

Ex.: CE 04W 1H 2R2 M BP

Type	Shape and performance	Dielectric strength	Capacity	Allowable error	Others
CE	04W	1H	2R2	M	BP

Type	Dielectric strength	Allowable error	Others
CE : Aluminum foil electrolyte	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolyte	1A : 10V	G : ±2%	BP : Non-polar type
CS : Tantalum electrolyte	1C : 16V	J : ±5%	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : ±20%	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : +80% −20%	U : UL part
CP : Oil	2A : 100V		C : CSA part
CM : Mica	2B : 125V	P : +100% −0%	W : UL-CSA type
CF : Metallized	2C : 160V		F : Lead wire forming
CH : Metallized	2D : 200V	C : ±0.25pF	
	2E : 250V	D : ±0.5pF	
	2H : 500V	– : Others	
	2J : 630V		

※ Capacity (except electrolyte)

2 R 2 ⇨ 2200pF = 2200 µF = 0.002 µF
2 — (More than 2) — Indicates number of zeros after effective number.
2 R — 2-digit effective number.

• Units: µF

2 2 1 ⇨ 220pF
1 — (0 or 1) — Indicates number of zeros after effective number.
2 2 — 2-digit effective number.

• Units: pF
• When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

1U-2479A P.W.B UNIT ASSY PARTS LIST

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC701	262 1211 904	IC HD14053BFP	
IC702	263 0700 008	IC M5220FP	
IC703	263 0354 001	IC µPC1297CA	
IC704	263 0621 006	IC LA2000	
IC705	262 1267 903	IC CXA1331M	
IC706	263 0589 009	IC CXA1198AP	
IC707	263 0761 005	IC M51131L	
IC708	263 0615 902	IC BA15208F	
IC709	262 1363 001	IC LC7583	
IC710	263 0402 005	IC BA6209	
IC711	263 0402 005	IC BA6209	
IC712	263 0822 009	IC M62005L	
IC713	262 1626 201	IC HD404710A---	µ-com
IC714	263 0794 001	IC NJM78M12FA(S)	Regulator +12V
IC715	263 0792 003	IC NJM78M06FA(S)	Regulator +6 V
IC716	263 0815 003	IC NJM78M08FA(S)	Regulator +8 V
IC717	263 0511 006	IC NJM79M08FA	Regulator −8 V
TR701	269 0102 905	Transister DTC124EK	Built in Resistor
TR702	275 0042 905	FET 2SK373(Y)	
TR703	275 0042 905	FET 2SK373(Y)	
TR704	269 0083 901	Transister DTA144EK	Built in Resistor
TR705	269 0054 901	Transister DTC144EK	Built in Resistor
TR706	269 0054 901	Transister DTC144EK	Built in Resistor
TR707	269 0054 901	Transister DTC144EK	Built in Resistor
TR708	269 0054 901	Transister DTC144EK	Built in Resistor
TR709	273 0384 900	Transister 2SC2412K(S)	
TR710	273 0384 900	Transister 2SC2412K(S)	
TR711	273 0384 900	Transister 2SC2412K(S)	
TR712	273 0384 900	Transister 2SC2412K(S)	
TR713	269 0082 902	Transister DTC114EK	Built in Resistor
TR714	269 0082 902	Transister DTC114EK	Built in Resistor
TR715	269 0066 902	Transister DTC323TK	Built in Resistor
TR716	269 0066 902	Transister DTC323TK	Built in Resistor
TR717	269 0066 902	Transister DTC323TK	Built in Resistor
TR718	269 0066 902	Transister DTC323TK	Built in Resistor
TR719	269 0066 902	Transister DTC323TK	Built in Resistor
TR720	269 0066 902	Transister DTC323TK	Built in Resistor
TR721	273 0303 910	Transister 2SC1740S(S)	
TR722	273 0303 910	Transister 2SC1740S(S)	
TR723	272 0025 907	Transister 2SB562(C)	
TR724	269 0082 902	Transister DTC114EK	Built in Resistor
TR725	269 0082 902	Transister DTC114EK	Built in Resistor
TR726	269 0082 902	Transister DTC114EK	Built in Resistor
TR727	269 0082 902	Transister DTC114EK	Built in Resistor
TR728	273 0384 900	Transister 2SC2412K(S)	
TR729	269 0082 902	Transister DTC114EK	Built in Resistor
TR730	269 0082 902	Transister DTC114EK	Built in Resistor
TR731	269 0082 902	Transister DTC114EK	Built in Resistor
TR732	273 0384 900	Transister 2SC2412K(S)	
TR733	273 0384 900	Transister 2SC2412K(S)	
TR734	269 0083 901	Transister DTA144EK	Built in Resistor
TR735	269 0082 902	Transister DTC114EK	Built in Resistor
TR736	269 0082 902	Transister DTC114EK	Built in Resistor
TR737	269 0054 901	Transister DTC144EK	Built in Resistor
TR738	269 0054 901	Transister DTC144EK	Built in Resistor
TR739	272 0025 907	Transister 2SB562(C)	
TR740	269 0088 906	Transister DTC114TK	Built in Resistor
TR741	272 0025 907	Transister 2SB562(C)	
TR742	269 0088 906	Transister DTC114TK	Built in Resistor
TR743	272 0025 907	Transister 2SB562(C)	
TR744	269 0088 906	Transister DTC114TK	Built in Resistor
TR745	272 0025 907	Transister 2SB562(C)	
TR746	269 0088 906	Transister DTC114TK	Built in Resistor
TR749	273 0330 006	Transister 2SC3852	
TR750	273 0384 900	Transister 2SC2412K(S)	
TR751	273 0384 900	Transister 2SC2412K(S)	
TR752	269 0054 901	Transister DTC144EK	Built in Resistor
TR753	273 0384 900	Transister 2SC2412K(S)	
TR754	269 0082 902	Transister DTC114EK	Built in Resistor
TR755	271 0192 905	Transister 2SA933S(S)	
TR756	274 0036 905	Transister 2SD468(C)	
TR757	269 0083 901	Transister DTA144EK	Built in Resistor
TR758	269 0082 902	Transister DTC114EK	Built in Resistor
TR759	273 0384 900	Transister 2SC2412K(S)	
TR761	269 0054 901	Transister DTC144EK	Built in Resistor
TR762	269 0054 901	Transister DTC144EK	Built in Resistor
TR763	269 0054 901	Transister DTC144EK	Built in Resistor
TR764	269 0066 902	Transister DTC323TK	Built in Resistor
TR765	269 0066 902	Transister DTC323TK	Built in Resistor
TR766	269 0082 902	Transister DTC114EK	Built in Resistor
TR780	269 0083 901	Transister DTA144EK	Built in Resistor
D701	276 0432 903	Diode 1SS270A	
D702	276 0432 903	Diode 1SS270A	
D703	276 0432 903	Diode 1SS270A	
D704	276 0432 903	Diode 1SS270A	
D705	276 0432 903	Diode 1SS270A	
D706	276 0432 903	Diode 1SS270A	
D707	276 0461 903	Zener Diode HZS6A-1	6 V
D708	276 0468 906	Zener Diode HZS9B-1	9 V
D709	276 0468 906	Zener Diode HZS9B-1	9 V
D710	276 0468 906	Zener Diode HZS9B-1	9 V
D711	276 0432 903	Diode 1SS270A	
D713	276 0432 903	Diode 1SS270A	
D714	276 0432 903	Diode 1SS270A	
D715	276 0432 903	Diode 1SS270A	
D716	276 0432 903	Diode 1SS270A	
D717	276 0432 903	Diode 1SS270A	
D718	276 0432 903	Diode 1SS270A	
D719	276 0432 903	Diode 1SS270A	

Ref. No.	Part No.	Part Name	Remarks
D720	276 0432 903	Diode 1SS270A	
D721	276 0432 903	Diode 1SS270A	
D722	276 0432 903	Diode 1SS270A	
D723	276 0432 903	Diode 1SS270A	
D724	276 0463 901	Zener Diode HZS6C-1	6 V
D725	276 0463 901	Zener Diode HZS6C-1	6 V
D726	276 0466 908	Zener Diode HZS7C-1	7 V
D727	276 0456 905	Zener Diode HZS4B-1	4 V
D728	276 0432 903	Diode 1SS270A	
D729	276 0432 903	Diode 1SS270A	
D730	276 0553 905	Diode 1SR35-200A	
D731	276 0432 903	Diode 1SS270A	
D732	276 0432 903	Diode 1SS270A	
D733	276 0432 903	Diode 1SS270A	
D734	276 0432 903	Diode 1SS270A	
D735	276 0456 905	Zener Diode HZS4B-1	4 V
D736	276 0466 908	Zener Diode HZS7C-1	7 V
D737	276 0553 905	Diode 1SR35-200A	
D738	276 0432 903	Diode 1SS270A	
D739	276 0432 903	Diode 1SS270A	
D740	276 0432 903	Diode 1SS270A	
D741	276 0432 903	Diode 1SS270A	
D742	276 0553 905	Diode 1SR35-200A	
D743	276 0432 903	Diode 1SS270A	
D744	276 0432 903	Diode 1SS270A	
D745	276 0553 905	Diode 1SR35-200A	
D746	276 0553 905	Diode 1SR35-200A	
D747	276 0553 905	Diode 1SR35-200A	
D748	276 0553 905	Diode 1SR35-200A	
D749	276 0553 905	Diode 1SR35-200A	
D750	276 0553 905	Diode 1SR35-200A	
D751	276 0553 905	Diode 1SR35-200A	
D752	276 0553 905	Diode 1SR35-200A	
D753	276 0553 905	Diode 1SR35-200A	
D754	276 0432 903	Diode 1SS270A	
D755	276 0473 904	Zener Diode HZS12A-1	12 V
D756	276 0452 909	Zener Diode HZS3A-1	3 V
D757	276 0432 903	Diode 1SS270A	
D758	276 0432 903	Diode 1SS270A	
D760	276 0432 903	Diode 1SS270A	
D761	276 0432 903	Diode 1SS270A	
D762	276 0460 904	Zener Diode HZS5C-1	5 V
D763	276 0432 903	Diode 1SS270A	
D764	276 0432 903	Diode 1SS270A	
D765	276 0456 918	Zener Diode HZS4B-2	4 V
	393 4143 001	LCD (8235JP)	LCD
	393 9470 009	LED	LED

RESISTORS GROUP (Not included Carbon Film ±5%,1/4W Type. Refer to the Scematic Diagram for those Parts.)

Ref. No.	Part No.	Part Name	Remarks
R701	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R702	247 0009 901	Chip Carbon 4.7kohm 1/10W	RM73B--472J
R703	247 0012 927	Chip Carbon 100kohm 1/10W	RM73B--104J
R704	247 0012 927	Chip Carbon 100kohm 1/10W	RM73B--104J
R705	247 0015 940	Chip Carbon 2.2Mohm 1/10W	RM73B--225J
R706	247 0015 940	Chip Carbon 2.2Mohm 1/10W	RM73B--225J
R707	247 0012 927	Chip Carbon 100kohm 1/10W	RM73B--104J
R708	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R709	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R710	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R711	247 0011 960	Chip Carbon 56 kohm 1/10W	RM73B--563J
R712	247 0011 960	Chip Carbon 56 kohm 1/10W	RM73B--563J
R713	247 0005 905	Chip Carbon 100ohm 1/10W	RM73B--101J
R714	247 0005 905	Chip Carbon 100ohm 1/10W	RM73B--101J
R715	247 0013 926	Chip Carbon 270kohm 1/10W	RM73B--274J
R716	247 0013 926	Chip Carbon 270kohm 1/10W	RM73B--274J
R717	247 0010 945	Chip Carbon 18 kohm 1/10W	RM73B--183J
R718	247 0010 945	Chip Carbon 18 kohm 1/10W	RM73B--183J
R719	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
R720	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
R721	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R722	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R723	247 0009 914	Chip Carbon 5.1kohm 1/10W	RM73B--512J
R724	247 0009 914	Chip Carbon 5.1kohm 1/10W	RM73B--512J
R725	247 0009 956	Chip Carbon 7.5kohm 1/10W	RM73B--752J
R726	247 0009 956	Chip Carbon 7.5kohm 1/10W	RM73B--752J
R727	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R728	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R729	247 0014 967	Chip Carbon 1 Mohm 1/10W	RM73B--105J
R730	247 0014 967	Chip Carbon 1 Mohm 1/10W	RM73B--105J
R731	247 0009 901	Chip Carbon 4.7kohm 1/10W	RM73B--472J
R732	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R733	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R734	247 0009 914	Chip Carbon 5.1kohm 1/10W	RM73B--512J
R735	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R736	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R737	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R738	247 0009 956	Chip Carbon 7.5kohm 1/10W	RM73B--752J
R739	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R740	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R741	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R742	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
R743	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
R744	247 0009 956	Chip Carbon 7.5kohm 1/10W	RM73B--752J
R745	247 0009 956	Chip Carbon 7.5kohm 1/10W	RM73B--752J
R746	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R747	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R748	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R749	247 0006 988	Chip Carbon 560ohm 1/10W	RM73B--561J
R750	247 0006 988	Chip Carbon 560ohm 1/10W	RM73B--561J
R751	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R752	247 0010 987	Chip Carbon 27 kohm 1/10W	RM73B--273J
R753	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R754	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R755	247 0008 902	Chip Carbon 1.8kohm 1/10W	RM73B--182J
R756	247 0008 902	Chip Carbon 1.8kohm 1/10W	RM73B--182J
R757	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R758	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R759	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R760	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R761	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R762	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R763	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R764	247 0011 902	Chip Carbon 33 kohm 1/10W	RM73B--333J
R765	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R766	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R767	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R768	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R769	247 0010 929	Chip Carbon 15 kohm 1/10W	RM73B--153J
R770	247 0010 929	Chip Carbon 15 kohm 1/10W	RM73B--153J
R771	247 0010 958	Chip Carbon 20 kohm 1/10W	RM73B--203J
R772	247 0010 958	Chip Carbon 20 kohm 1/10W	RM73B--203J
R773	247 0005 905	Chip Carbon 100ohm 1/10W	RM73B--101J
R774	247 0005 905	Chip Carbon 100ohm 1/10W	RM73B--101J
R775	247 0013 984	Chip Carbon 470kohm 1/10W	RM73B--474J
R776	247 0013 984	Chip Carbon 470kohm 1/10W	RM73B--474J
R777	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R778	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R786	247 0010 945	Chip Carbon 18 kohm 1/10W	RM73B--183J
R790	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R791	247 0009 901	Chip Carbon 4.7kohm 1/10W	RM73B--472J
R792	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R793	247 0012 969	Chip Carbon 150kohm 1/10W	RM73B--154J
R794	247 0012 969	Chip Carbon 150kohm 1/10W	RM73B--154J
R795	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R796	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R797	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R798	247 0006 988	Chip Carbon 560ohm 1/10W	RM73B--561J
R799	247 0007 987	Chip Carbon 1.5kohm 1/10W	RM73B--152J
R801	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R802	247 0011 960	Chip Carbon 56 kohm 1/10W	RM73B--563J
R803	247 0012 914	Chip Carbon 91 kohm 1/10W	RM73B--913J
R804	247 0012 901	Chip Carbon 82 kohm 1/10W	RM73B--823J
R805	247 0010 929	Chip Carbon 15 kohm 1/10W	RM73B--153J
R806	247 0012 930	Chip Carbon 110kohm 1/10W	RM73B--114J
R807	247 0011 986	Chip Carbon 68 kohm 1/10W	RM73B--683J
R808	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R809	247 0011 957	Chip Carbon 51 kohm 1/10W	RM73B--513J
R810	247 0011 957	Chip Carbon 51 kohm 1/10W	RM73B--513J
R811	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R812	247 0012 927	Chip Carbon 100kohm 1/10W	RM73B--104J
R813	247 0012 943	Chip Carbon 120kohm 1/10W	RM73B--124J
R814	247 0011 986	Chip Carbon 68 kohm 1/10W	RM73B--683J
R815	247 0011 957	Chip Carbon 51 kohm 1/10W	RM73B--513J
R816	247 0011 957	Chip Carbon 51 kohm 1/10W	RM73B--513J
R817	247 0012 943	Chip Carbon 120kohm 1/10W	RM73B--124J
R818	247 0012 998	Chip Carbon 200kohm 1/10W	RM73B--204J
R819	247 0011 986	Chip Carbon 68 kohm 1/10W	RM73B--683J
R820	247 0012 969	Chip Carbon 150kohm 1/10W	RM73B--154J
R823	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R824	247 0009 927	Chip Carbon 5.6kohm 1/10W	RM73B--562J
R825	247 0009 927	Chip Carbon 5.6kohm 1/10W	RM73B--562J
R826	247 0009 927	Chip Carbon 5.6kohm 1/10W	RM73B--562J
R827	247 0009 927	Chip Carbon 5.6kohm 1/10W	RM73B--562J
R828	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R829	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R830	247 0009 901	Chip Carbon 4.7kohm 1/10W	RM73B--472J
R831	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R832	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R833	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R834	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R836	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R837	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R838	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R839	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R840	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R841	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R842	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R843	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R844	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R846	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R847	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R848	247 0010 990	Chip Carbon 30 kohm 1/10W	RM73B--303J
R849	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R850	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R852	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R854	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R855	247 0010 990	Chip Carbon 30 kohm 1/10W	RM73B--303J
R857	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R858	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R859	247 0010 990	Chip Carbon 30 kohm 1/10W	RM73B--303J
R860	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R861	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R863	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R865	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R866	247 0010 990	Chip Carbon 30 kohm 1/10W	RM73B--303J
R870	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R871	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R872	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R873	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R874	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R875	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R876	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R877	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J

CASSETTE DECK SECTION

Ref. No.	Part No.	Part Name	Remarks
R878	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R879	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R880	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R881	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R882	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R883	247 0009 901	Chip Carbon 4.7kohm 1/10W	RM73B--472J
R884	247 0009 901	Chip Carbon 4.7kohm 1/10W	RM73B--472J
R885	247 0009 901	Chip Carbon 4.7kohm 1/10W	RM73B--472J
R886	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R887	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R888	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R889	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R890	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R891	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R892	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R894	247 0008 931	Chip Carbon 2.4kohm 1/10W	RM73B--242J
R896	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R897	247 0000 931	Chip Carbon 2.4kohm 1/10W	RM73B--242J
R898	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R899	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R900	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R901	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R902	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R905	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0J
R906	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R907	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R908	247 0005 905	Chip Carbon 100ohm 1/10W	RM73B--101J
R909	247 0009 901	Chip Carbon 4.7kohm 1/10W	RM73B--472J
R910	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R911	247 0012 927	Chip Carbon 100kohm 1/10W	RM73B--104J
R912	247 0006 962	Chip Carbon 470 ohm 1/10W	RM73B--471J
R913	247 0006 962	Chip Carbon 470 ohm 1/10W	RM73B--471J
R914	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J
R915	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J
R916	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R917	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R918	247 0012 927	Chip Carbon 100kohm 1/10W	RM73B--104J
R919	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R920	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R921	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R922	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R925	247 0014 967	Chip Carbon 1 Mohm 1/10W	RM73B--105J
R926	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R927	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R928	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R930	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R931	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R932	247 0009 914	Chip Carbon 5.1kohm 1/10W	RM73B--512J
R933	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J
R934	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J
R935	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J
R936	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J
R937	247 0010 990	Chip Carbon 30 kohm 1/10W	RM73B--303J
R938	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R940	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R941	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R942	247 0011 999	Chip Carbon 75 kohm 1/10W	RM73B--753J
R943	247 0011 999	Chip Carbon 75 kohm 1/10W	RM73B--753J
R946	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R947	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R948	247 0010 929	Chip Carbon 15 kohm 1/10W	RM73B--153J
R949	247 0010 929	Chip Carbon 15 kohm 1/10W	RM73B--153J
△R787	241 2313 985	Carbon Film 4.7ohm 1/4W(NB)	RD14B2E820JFRS
△R788	241 2315 925	Fusible 22 ohm 1/4W(NB)	RD14B2E820GFRS
△R789	241 2315 925	Fusible 22 ohm 1/4W(NB)	RD14B2E820GFRS
△R821	241 2377 921	Carbon Film 82 ohm 1/4W(NB)	RD14B2E820JNBS
△R822	241 2377 921	Carbon Film 82 ohm 1/4W(NB)	RD14B2E820JNBS
△R845	244 2050 904	Metal Oxide 22 ohm 1W (NB)	RS14B3A220JNBS(S)
△R856	244 2050 904	Metal Oxide 22 ohm 1W (NB)	RS14B3A220JNBS(S)
△R944	244 2050 904	Metal Oxide 22 ohm 1W (NB)	RS14B3A220JNBS(S)
△R945	244 2050 904	Metal Oxide 22 ohm 1W (NB)	RS14B3A220JNBS(S)
VR701	211 6091 901	Semi Fixed Resistor 1k ohm	V06PB102
VR702	211 6091 901	Semi Fixed Resistor 1k ohm	V06PB102
VR703	211 6091 901	Semi Fixed Resistor 1k ohm	V06PB102
VR704	211 6091 901	Semi Fixed Resistor 1k ohm	V06PB102
VR705	211 6091 930	Semi Fixed Resistor 10k ohm	V06PB103
VR706	211 6091 930	Semi Fixed Resistor 10k ohm	V06PB103
VR707	211 6091 956	Semi Fixed Resistor 47k ohm	V06PB473
VR708	211 6091 956	Semi Fixed Resistor 47k ohm	V06PB473
VR709	211 6090 009	Semi Fixed Resistor 100k ohm	V0920P07FA104
CAPACITORS GROUP			
C701	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C702	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C703	257 0005 986	Chip Ceramic 330 pF/50 V	CC73SL1H331J
C704	257 0005 986	Chip Ceramic 330 pF/50 V	CC73SL1H331J
C705	257 0002 921	Chip Ceramic 10 pF/50 V	CC73SL1H100D
C706	257 0002 921	Chip Ceramic 10 pF/50 V	CC73SL1H100D
C707	257 0008 983	Chip Ceramic 1000 pF/50 V	CK73B1H102K
C708	257 0008 983	Chip Ceramic 1000 pF/50 V	CK73B1H102K
C709	257 0008 983	Chip Ceramic 1000 pF/50 V	CK73B1H102K
C710	257 0012 966	Chip Ceramic 0.01μF/50 V	CK73F1H103Z
C711	257 0012 966	Chip Ceramic 0.01μF/50 V	CK73F1H103Z
C712	257 0004 961	Chip Ceramic 100 pF/50 V	CC73SL1H101J
C713	257 0004 961	Chip Ceramic 100 pF/50 V	CC73SL1H101J
C714	254 4300 963	Electrolytic 100μF/6.3 V	CE04W0J101M(SRE)
C715	254 4300 963	Electrolytic 100μF/6.3 V	CE04W0J101M(SRE)
C716	255 1256 903	Plastic Film 0.0075μF/50V	CQ92M1H752J(MRZ)
C717	255 1256 903	Plastic Film 0.0075μF/50V	CQ92M1H752J(MRZ)
C718	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C719	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C722	254 4252 927	Electrolytic 47μF/10 V	CE04W1A470M
C723	254 4252 927	Electrolytic 47μF/10 V	CE04W1A470M
C724	254 4302 974	Electrolytic 100μF/10 V	CE04W1A101M(SRE)
C725	255 1265 936	Plastic Film 0.01μF/50 V	CQ93M1H103J(B)
C726	255 1265 936	Plastic Film 0.01μF/50 V	CQ93M1H103J(B)
C727	254 4305 968	Electrolytic 1μF/50 V	CE04W1H010M(SRE)
C728	254 4305 968	Electrolytic 1μF/50 V	CE04W1H010M(SRE)
C729	254 4305 968	Electrolytic 1μF/50 V	CE04W1H010M(SRE)
C730	254 4305 968	Electrolytic 1μF/50 V	CE04W1H010M(SRE)
C731	254 4299 003	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C732	257 0009 937	Chip Ceramic 2700 pF/50 V	CK73B1H272K
C733	257 0009 937	Chip Ceramic 2700 pF/50 V	CK73B1H272K
C734	257 0009 924	Chip Ceramic 2200 pF/50 V	CK73B1H222K
C735	257 0009 924	Chip Ceramic 2200 pF/50 V	CK73B1H222K
C736	257 0009 924	Chip Ceramic 2200 pF/50 V	CK73B1H222K
C737	257 0009 924	Chip Ceramic 2200 pF/50 V	CK73B1H222K
C738	254 4278 943	Electrolytic 0.56μF/50 V	CE04W1HR56M
C739	254 4278 943	Electrolytic 0.56μF/50 V	CE04W1HR56M
C740	254 4305 939	Electrolytic 0.33μF/50 V	CE04W1HR33M(SRE)
C741	254 4305 939	Electrolytic 0.33μF/50 V	CE04W1HR33M(SRE)
C742	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C743	254 4304 024	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C744	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C745	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C746	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C747	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C748	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C749	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C750	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C751	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C752	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C753	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C754	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C755	254 4299 919	Electrolytic 22μF/16 V	CE04W1C220M(SRE)
C756	254 4305 997	Electrolytic 3.3μF/50 V	CE04W1H3R3M(SRE)
C757	254 4305 997	Electrolytic 3.3μF/50 V	CE04W1H3R3M(SRE)
C758	254 4305 997	Electrolytic 3.3μF/50 V	CE04W1H3R3M(SRE)
C759	254 4305 997	Electrolytic 3.3μF/50 V	CE04W1H3R3M(SRE)
C760	254 4303 957	Electrolytic 22μF/25 V	CE04W1E220M(SRE)
C761	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C762	254 4305 968	Electrolytic 1μF/50 V	CE04W1H010M(SRE)
C763	257 0008 983	Chip Ceramic 1000 pF/50 V	CK73B1H102K
C764	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C765	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C766	257 0004 961	Chip Ceramic 100 pF/50 V	CC73SL1H101J
C767	257 0004 961	Chip Ceramic 100 pF/50 V	CC73SL1H101J
C768	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C769	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C770	257 0010 984	Chip Ceramic 0.047μF/50 V	CK73B1H473K
C771	257 0006 985	Chip Ceramic 820 pF/50 V	CC73SL1H821J
C772	257 0006 985	Chip Ceramic 820 pF/50 V	CC73SL1H821J
C773	257 0010 900	Chip Ceramic 0.01μF/50 V	CK73B1H103K
C774	257 0010 900	Chip Ceramic 0.01μF/50 V	CK73B1H103K
C775	257 0010 984	Chip Ceramic 0.047μF/50 V	CK73B1H473K
C776	257 0010 984	Chip Ceramic 0.047μF/50 V	CK73B1H473K
C777	257 0010 942	Chip Ceramic 0.022μF/50 V	CK73B1H223K
C778	257 0010 942	Chip Ceramic 0.022μF/50 V	CK73B1H223K
C779	254 4304 943	Electrolytic 10μF/35 V	CE04W1V100M(SRE)
C780	254 4303 957	Electrolytic 22μF/25 V	CE04W1E220M(SRE)
C781	255 1265 936	Plastic Film 0.0082μF/200V	CQ92M2D822J
C782	257 0002 921	Chip Ceramic 10 pF/50 V	CC73SL1H100D
C783	255 1265 978	Plastic Film 0.022μF/50 V	CQ93M1H223J(B)
C784	257 0009 937	Chip Ceramic 2700 pF/50 V	CK73B1H272K
C785	254 4256 952	Electrolytic 220μF/25 V	CE04W1E221M
C786	254 4305 900	Electrolytic 0.1μF/50 V	CE04W1H0R1M(SRE)
C787	254 4305 900	Electrolytic 0.1μF/50 V	CE04W1H0R1M(SRE)
C788	254 4305 968	Electrolytic 1μF/50 V	CE04W1H010M(SRE)
C789	254 4305 968	Electrolytic 1μF/50 V	CE04W1H010M(SRE)
C790	254 4252 930	Electrolytic 100μF/10 V	CE04W1A101M
C791	254 4305 942	Electrolytic 0.47μF/50 V	CE04W1HR47M(SRE)
C792	254 4305 942	Electrolytic 0.47μF/50 V	CE04W1HR47M(SRE)
C793	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C794	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C795	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C796	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C797	254 4252 930	Electrolytic 100μF/10 V	CE04W1A101M
C798	254 4327 904	Electrolytic 1000μF/6.3 V	CE04W0J102M(SMG)
C799	257 0014 935	Chip Ceramic 0.1μF/25 V	CK73F1E104Z
C800	257 0014 935	Chip Ceramic 0.1μF/25 V	CK73F1E104Z
C802	257 0014 935	Chip Ceramic 0.1μF/25 V	CK73F1E104Z
C803	257 0014 935	Chip Ceramic 0.1μF/25 V	CK73F1E104Z
C805	254 4327 904	Electrolytic 1000μF/6.3 V	CE04W0J102M(SMG)
C806	257 0012 966	Chip Ceramic 0.01μF/50 V	CK73F1H103Z
C807	254 4305 942	Electrolytic 0.47μF/50 V	CE04W1HR47M(SRE)
C808	257 0014 935	Chip Ceramic 0.1μF/25 V	CK73F1E104Z
C809	257 0005 902	Chip Ceramic 150 pF/50 V	CC73SL1H151J
C810	257 0005 902	Chip Ceramic 150 pF/50 V	CC73SL1H151J
C811	254 4304 927	Electrolytic 4.7μF/35 V	CE04W1V4R7M(SRE)
C812	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C813	257 1013 977	Chip Ceramic 0.068μF/25 V	CK73B1E683K
C814	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C816	254 4256 949	Electrolytic 100μF/25 V	CE04W1E101M
C817	257 1013 977	Chip Ceramic 0.068μF/25 V	CK73B1E683K
C818	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C819	254 4261 921	Electrolytic 100μF/50 V	CE04W1H101M
C820	254 4258 950	Electrolytic 100μF/35 V	CE04W1V101M
C821	254 4256 790	Electrolytic 2200μF/25 V	CE04W1E222MC
C822	254 4254 938	Electrolytic 47μF/16 V	CE04W1C470M
C823	254 4256 790	Electrolytic 2200μF/25 V	CE04W1E222MC
C824	254 4257 702	Electrolytic 3300μF/25 V	CE04W1E332MC
C825	257 0010 900	Chip Ceramic 0.01μF/50 V	CK73B1H103K

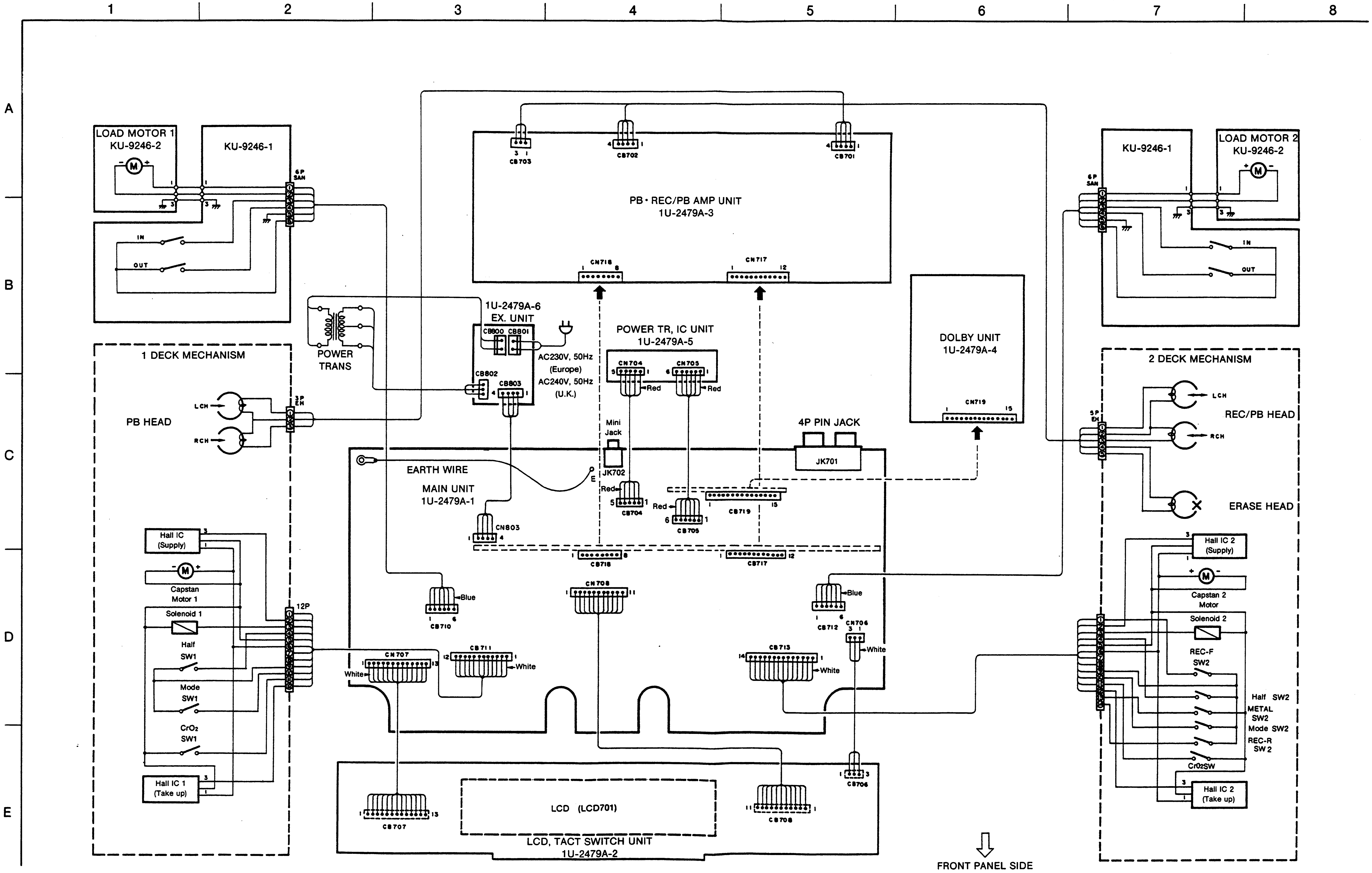
Ref. No.	Part No.	Part Name	Remarks
C827	254 4304 943	Electrolytic 10μF/35 V	CE04W1V100M(SRE)
C828	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C829	257 1013 977	Chip Ceramic 0.068μF/25 V	CK73B1E683K
C831	254 4304 943	Electrolytic 10μF/35 V	CE04W1V100M(SRE)
C832	254 4305 942	Electrolytic 0.47μF/50 V	CE04W1HR47M(SRE)
C833	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C834	257 1013 977	Chip Ceramic 0.068μF/25 V	CK73B1E683K
C835	254 4256 952	Electrolytic 220μF/25 V	CE04W1E221M
C836	254 4305 997	Electrolytic 3.3μF/50 V	CE04W1H3R3M(SRE)
C837	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C838	254 4302 974	Electrolytic 100μF/10 V	CE04W1A101M(SRE)
C839	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C840	254 4305 968	Electrolytic 1μF/50 V	CE04W1H010M(SRE)
C841	257 0014 935	Chip Ceramic 0.1μF/25 V	CK73F1E104Z
C842	257 0014 935	Chip Ceramic 0.1μF/25 V	CK73F1E104Z
C843	254 4299 906	Electrolytic 10μF/16 V	CE04W1C100M(SRE)
C846	257 0005 986	Chip Ceramic 330 pF/50 V	CC73SL1H331J
C847	257 0005 986	Chip Ceramic 330 pF/50 V	CC73SL1H331J
C849	254 4260 948	Electrolytic 1μF/50 V	CE04W1H010M
C851	257 0003 904	Chip Ceramic 22 pF/50 V	CC73SL1H220J
C852	257 0003 904	Chip Ceramic 22 pF/50 V	CC73SL1H220J
C853	254 4254 006	Electrolytic 10μF/16 V	CE04W1C100M
C854	254 4260 058	Electrolytic 2.2μF/50 V	CE04W1H2R2M

OTHERS GROUP				Q'ty
	—	(P.W.Board)		1
L703	232 0109 003	MPX Filter		1
L704	232 0109 003	MPX Filter		1
L705	235 0020 945	Inductor 153J		1
L706	235 0020 945	Inductor 153J		1
L707	239 0010 009	HX Step up Coil		1
L708	239 0010 009	HX Step up Coil		1
L709	232 0135 006	OSC Coil		1
	212 5604 910	Tact Switch		19
SW701	212 1078 906	Slide Switch(1-3)		1
SW702	212 1078 906	Slide Switch(1-3)		1
	449 0057 009	LCD Holder		1
CF701	399 9018 003	Ceramic Vibrator	GST4.00MGW	1
JK701	204 8266 008	4 P Pin Jsck(S-GND)		1
JK702	204 8421 005	Mini Jack		1
CB709	204 2429 003	7 P System Socket		1
△F800	206 1015 058	Fuse 1.6 A		1
△F801	206 1015 058	Fuse 1.6 A		1
	202 0040 909	Fuse Clip		4
				1
	205 0452 017	Style Pin		3
CB701	205 0343 045	4 P Conn. Base(KR-PH)	For PB Head	1
CB702	205 0321 041	4 P Conn. Base(Red)	For R/PB Head	1
CB703	205 0355 033	3 P KR Conn. Base(L)		1
CB704	205 0343 058	5 P Conn. Base(KR-PH)		1
CB705	205 0343 061	6 P Conn. Base(KR-PH)		1

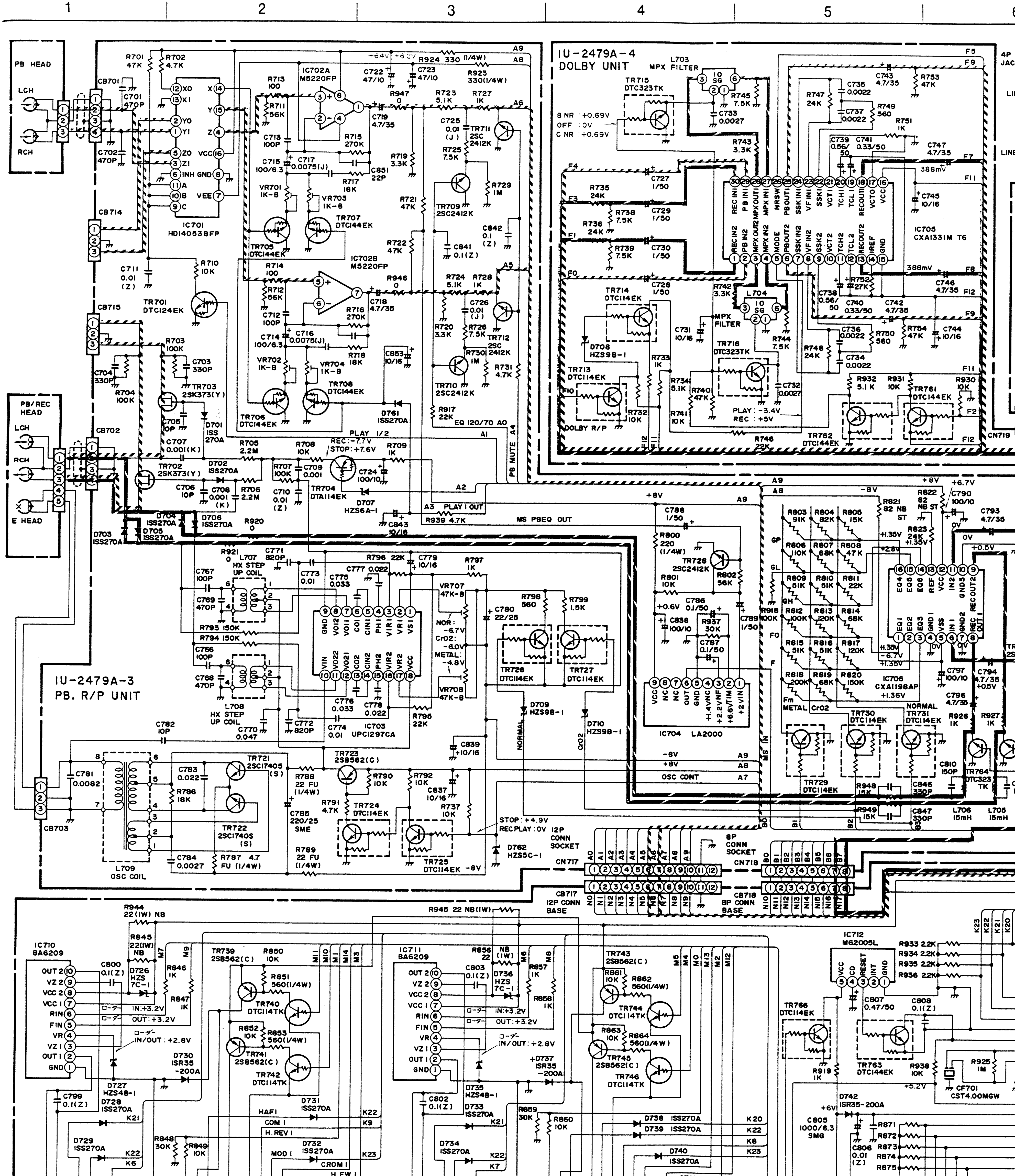
Ref. No.	Part No.	Part Name	Remarks	Q'ty
CB706	205 0343 032	3 P Conn. Base(KR-PH)		1
CB707	205 0375 039	13 P Conn. Base(KR-PH)		1
CB708	205 0375 013	11 P Conn. Base(KR-PH)		1
CB710	205 0343 061	6 P Conn. Base(KR-PH)		1
CB712	205 0343 061	6 P Conn. Base(KR-PH)		1
CB711	205 0553 026	12 P Trap Conn. Base		1
CB713	205 0554 041	14 P Trap Conn. Base		1
CB714	205 0409 031	3 P Dip Socket		1
CB715	205 0409 031	3 P Dip Socket		1
CN704	205 0409 057	5 P Dip Socket		1
CN705	205 0409 060	6 P Dip Socket		1
CB717	205 0535 028	12 P Conn. Base		1
CB718	205 0535 002	8 P Conn. Base		1
CN717	205 0536 027	12 P Conn. Socket		1
CN718	205 0536 001	8 P Conn. Socket		1
CN719	205 0708 017	15 P Conn. Socket		1
CN719	205 0707 018	15 P Conn. Base		1
W001	203 0226 014	1 P Contact Assy	L=120	1
W002	209 0220 005	Vinyl Wire(UL1007)	L=150	1
W003	209 0220 047	Vinyl Wire(UL1007)	L=100	1
W004	209 0220 005	Vinyl Wire(UL1007)	L=150	1
W005	209 0220 047	Vinyl Wire(UL1007)	L=100	1
W006	209 0220 047	Vinyl Wire(UL1007)	L=100	1
	204 0009 014	2 C Sheild Wire	L=150	1
CN704	203 8337 015	5 P PH Conn. Cord	L=100	1
CN705	204 0391 007	6 P PH Conn. Cord	L=100	1
CN706	203 4896 000	3 P KR-DA Conn. Cord	L=360	1
CN708	204 6387 002	11 P KR-DA Conn. Cord	L=300	1
CN707	204 6388 001	13 P KR-DA Conn. Cord	L=300	1
CN803	203 6352 005	4 P EH-SCN Conn. Cord	L=150	1
△CB800	205 0581 001	12 P VH Conn. Base		1
△CB801	205 0581 001	12 P VH Conn. Base		1
△CB802	205 0233 032	3 P EH Conn. Base		1
CB803	205 0233 045	4 P EH Conn. Base		1

CASSETTE DECK SECTION

WIRING DIAGRAM


1
2
3
4
5
6
7
8
A
B
C
D
E
LOAD MOTOR 1
KU-9246-2
KU-9246-1
6P SAN
IN
OUT
1 DECK MECHANISM
PB HEAD
LCH
RCH
3P EH
Hall IC (Supply)
Capstan Motor 1
Solenoid 1
Half SW1
Mode SW1
CrO₂ SW1
Hall IC 1 (Take up)
12P
POWER TRANS
1U-2479A-6
EX. UNIT
CB800
CB801
CB802
CB803
AC230V, 50Hz (Europe)
AC240V, 50Hz (U.K.)
CB703
CB702
CB701
PB・REC/PB AMP UNIT
1U-2479A-3
CN718
CN717
POWER TR, IC UNIT
1U-2479A-5
CN704
CN705
Red
Mini Jack
JK702
4P PIN JACK
JK701
DOLBY UNIT
1U-2479A-4
CN719
EARTH WIRE
E
MAIN UNIT
1U-2479A-1
CN803
CB704
CB705
CB719
CB718
CB717
CN708
CB710
Blue
CN707
White
CB711
CB712
CN706
CB713
LCD (LCD701)
LCD, TACT SWITCH UNIT
1U-2479A-2
CB707
CB708
CB706
FRONT PANEL SIDE
KU-9246-1
LOAD MOTOR 2
KU-9246-2
2 DECK MECHANISM
REC/PB HEAD
5P EH
ERASE HEAD
Hall IC 2 (Supply)
Capstan 2 Motor
Solenoid 2
REC-F SW2
Half SW2
METAL SW2
Mode SW2
REC-R SW 2
CrO₂SW
Hall IC 2 (Take up)

SCHEMATIC D


1
2
3
4
5
6
PB HEAD
LCH
RCH
PB/REC HEAD
E HEAD
CB701
CB702
CB703
CB714
CB715
IC701 HD14053BFP
IC702A M5220FP
IC702B M5220FP
IU-2479A-4 DOLBY UNIT
MPX FILTER
L703
L704
IC705 CXA1331M T6
8 NR : +0.69V
OFF : 0V
C NR : +0.69V
DOLBY R/P
IU-2479A-3 PB. R/P UNIT
IC703 UPC1297CA
L707 HX STEP UP COIL
L708 HX STEP UP COIL
L709 OSC COIL
IC704 LA2000
IC706 CXA1198AP
NORMAL
METAL
CrO2
PLAY 1/2
PLAY 1 OUT
MS PBEQ OUT
PB MUTE
EQ 120/70
OSC CONT
STOP : +4.9V
REC PLAY : 0V
12P CONN SOCKET
CN717
8P CONN SOCKET
CN718
CB717 12P CONN BASE
CB718 8P CONN BASE
CN719
IC710 BA6209
IC711 BA6209
IC712 M62005L
CF701 CST4.00MGW
R871 ~ R882 47K
CB710
CB711
CB712
CB713
IN OUT LOAD 1
IN OUT LOAD 2
LOAD2 MOTOR
KU-9246-1
KU-9246-2
HALLIC 1 supply
CAPSTAN MOTOR 1
SOL 1
HALF 1
MODE 1
CROM 1
HALLIC 1 take up
HALLIC 2 supply
CAPSTAN MOTOR 2
SOL 2
REC-F2
HALF 2
METAL 2
MODE 2
REC-R2
CROM 2
HALLIC2 take up

P.B. SIGNAL LINE

REC SIGNAL LINE

WARNING:

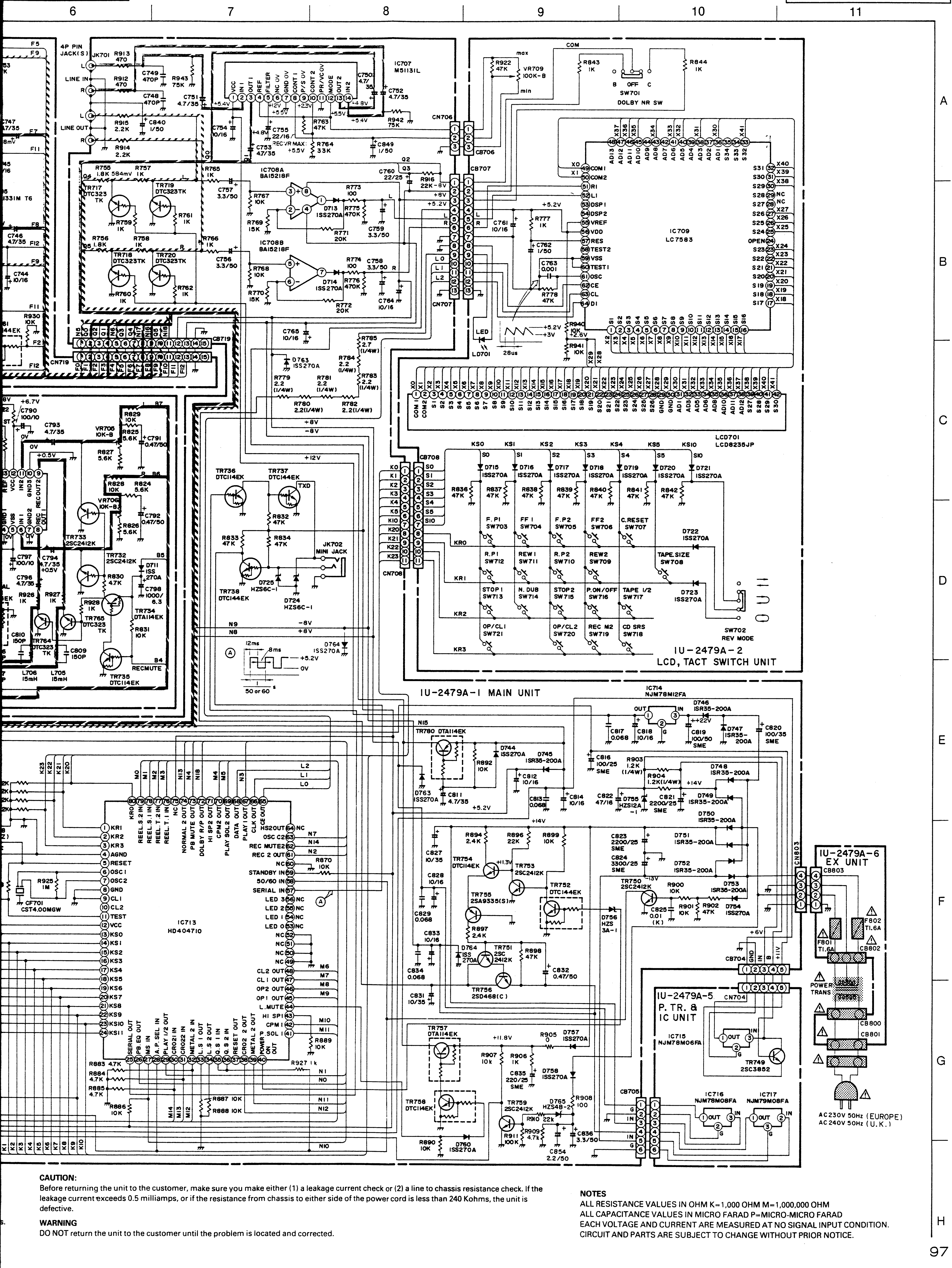
Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manifacturer.

CAUTION

Before ret
leakage cu
defective.

WARNING

DO NOT r


6
7
8
9
10
11
A
B
C
D
E
F
G
H
4P PIN JACK(S) JK701
LINE IN
LINE OUT
IC707 M51131L
IC708A BA15218F
IC708B BA15218F
SW701 DOLBY NR SW
IC709 LC7583
LCD701 LCD8235JP
LD701 LED
JK702 MINI JACK
F.P1 SW703
FF1 SW704
F.P2 SW705
FF2 SW706
C.RESET SW707
R.P1 SW712
REW1 SW711
R.P2 SW710
REW2 SW709
TAPE.SIZE SW708
STOP1 SW713
N.DUB SW714
STOP2 SW715
P.ON/OFF SW716
TAPE 1/2 SW717
OP/CL1 SW721
OP/CL2 SW720
REC M2 SW719
CD SRS SW718
SW702 REV MODE
IU-2479A-2 LCD, TACT SWITCH UNIT
IU-2479A-1 MAIN UNIT
IC713 HD404710
CF701 CST4.00MGW
IC714 NJM78M12FA
IU-2479A-6 EX UNIT
IU-2479A-5 P. TR. & IC UNIT
IC715 NJM78M06FA
IC716 NJM78M08FA
IC717 NJM79M08FA
POWER TRANS.
F801 T1.6A
F802 T1.6A
AC230V 50Hz (EUROPE)
AC 240V 50Hz (U.K.)

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is defective.

WARNING
DO NOT return the unit to the customer until the problem is located and corrected.

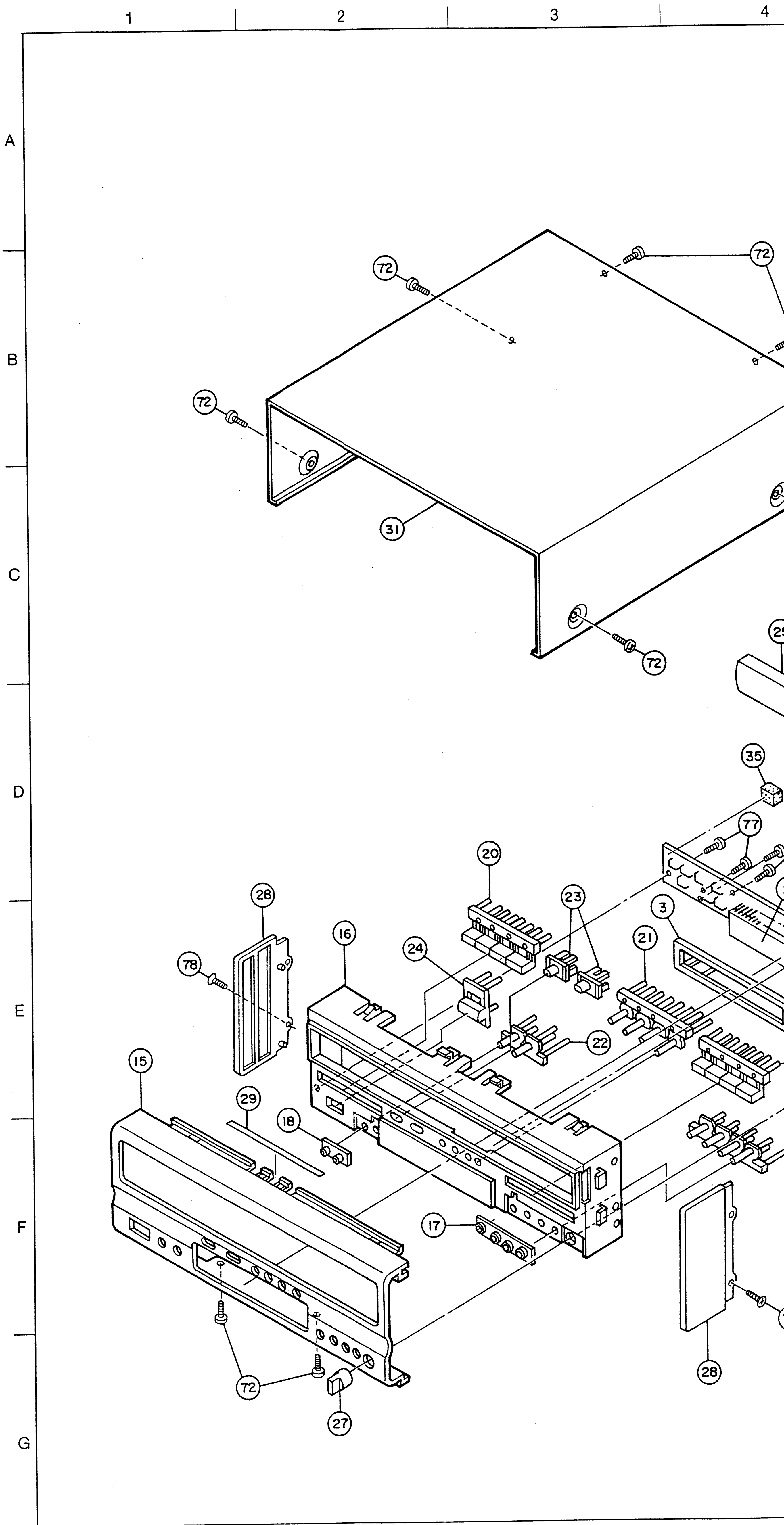
NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

CASSETTE DECK SECTION

EXPLODED VIEW OF PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	1U- 2479 A	P.W.Board Unit Assy		1^S
1-1	—	Main Unit		(1)
1-2	—	LCD,Tact Switch Unit		(1)
1-3	—	PB,R/P Unit		(1)
1-4	—	Dolby Unit		(1)
1-5	—	P.TR.& IC Unit		(1)
1-6	—	EX. Unit		(1)
2	393 4143 001	LCD (8235JP)		1
3	449 0057 009	LCD Holder		1
4	211 6090 009	Variable Resistor 100kohm		1
5	204 8421 005	Mini Jack		1
6	—	—		
7	204 8266 008	4 P Pin Jack(S-GND)		1
◉ 8	411 1184 316	Main Chassis		1
9	104 0237 201	Foot Assy		4
◉ 10	105 1043 112	Rear Panel	Europe model	1
◉ 10	105 1043 138	Rear Panel	U.K. model	1
◉ 11	412 2814 028	Card Spacer(L=10)		1
◉ 12	412 3548 005	P.W.B Catcher		2
◉ 13	HM55A	Cassette Mech. Unit		1
14	449 0071 001	Mech. Holder(F)		2
◉ 15	144 2213 221	Front Panel		1
◉ 16	146 1404 309	Inner Panel Assy		1
17	146 1420 105	Knob Guide(Round)		1
18	146 1420 118	Knob Guide(Round)		1
19	113 1547 318	Push Knob(Play)		1
20	113 1547 321	Push Knob(Play)		1
21	113 1549 002	Push Knob(Round)		2
22	113 1549 015	Push Knob(Round)		1
23	113 1548 003	Select Knob		2
24	113 1460 000	Power Knob		1
25	146 1407 209	Loader Panel(1)		1
26	146 1408 208	Loader Panel(2)		1
27	112 0645 166	Knob	Rec Level	1
28	146 1400 303	Side Plate		2
29	122 0183 007	Spacer	100×10×t0.5	1
★ 30	445 8004 007	Wire Clamper		5
◉ 31	102 0518 209	Top Cover		1
◉ 32	412 9326 001	IC Holder		1
◉ 33	412 9327 000	P.W.B Bracket		1
34	414 9125 101	Wire Cover		4
35	461 9036 005	Spacer	15×15×t5	1
⚠ 36	233 9649 004	Power Trans.	Europe model	1
⚠ 36	233 9652 004	Power Trans.	U.K. model	1
⚠ 37	206 1015 058	Fuse 1.6 A	F800,801	2
⚠ 38	445 0056 008	Cord Bush		1
⚠ 39	206 2089 106	AC Cord W/Conn.		1
40	415 9016 006	P.C.B Holder		2
41	—	—		
42	254 4256 790	Chemicon 2200µF/25V	C821,823	2
43	254 4257 702	Chemicon 3300µF/25V	C824	1
44	393 9470 009	LED		1
45	415 9070 000	Insulating Sheet		1
46	461 0758 007	Rubber Sheet	10×8×T5	2
47	513 9315 001	Rating Sheet	Europe model	1
47	513 9315 014	Rating Sheet	U.K. model	1
SCREWS				
71	473 7002 005	Tapping Screw(S)3×6		10
72	473 7015 005	Tapping Screw(S)3×6	Black	14
73	473 7508 046	Tapping Screw(S)3×16	Black	2
74	477 0064 107	Fixing Screw		1
75	473 7508 017	Tapping Screw(P)3×10	Black	4
76	473 7500 015	Tapping Screw(P)3×8		4
77	473 7505 007	Tapping Screw(P)2.6×8		8
78	473 7009 008	F.Tapping Screw(S)3×6		2
79	473 7015 018	Tapping Screw(S)3×8	Black	6
80				
PACKING & ACCESSORIES (Not included EXPLODED VIEW)				
101	505 0102 089	Stylen Paper	700×700	1
102	503 1029 107	Cushion		1
103	503 1032 107	Top Cushion		1
104	501 9228 001	Carton Case		1
105	461 0770 001	Protector Sheet		1

EXPLO



NOTE ON PARTS LIST

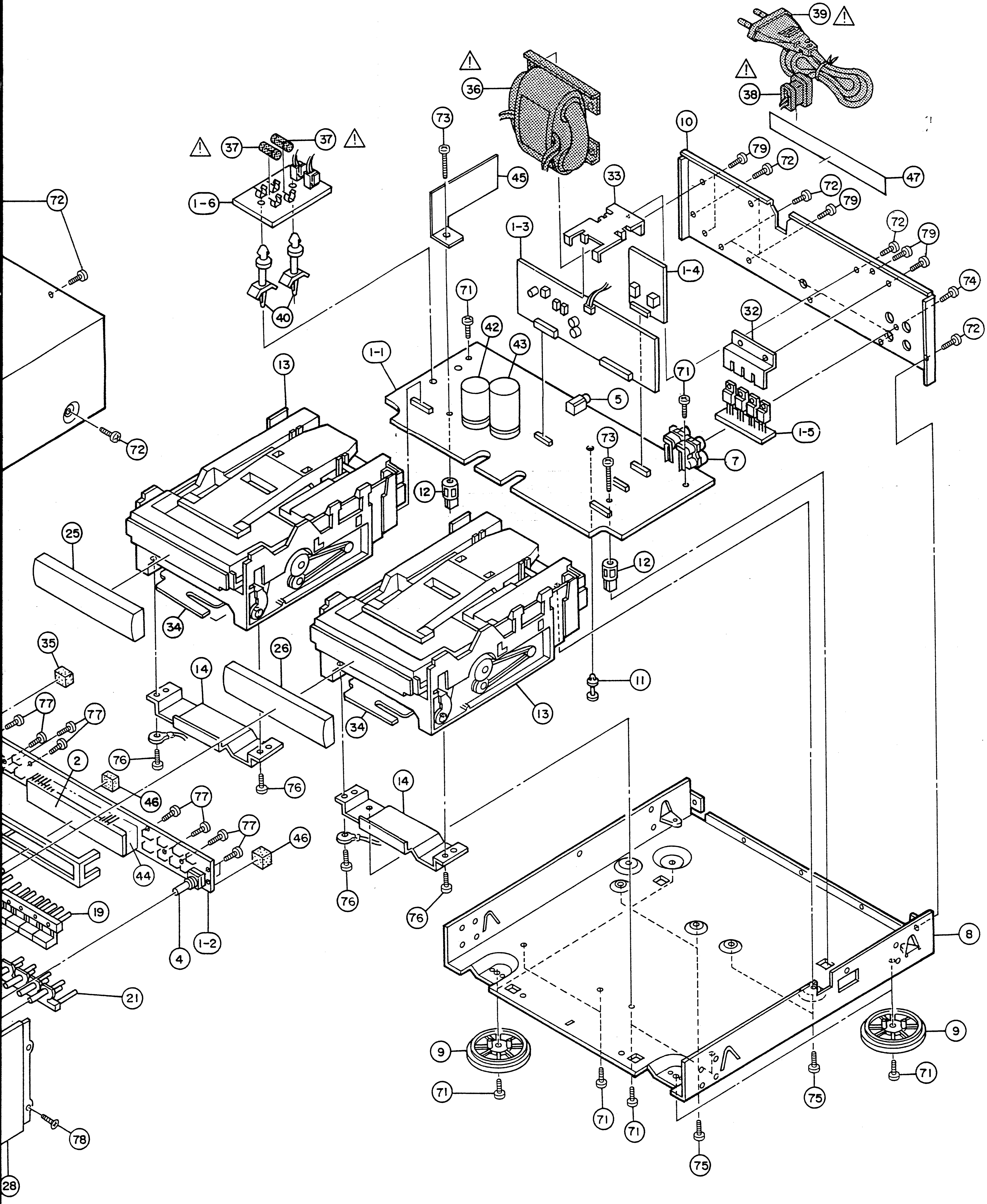
- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in son supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

H

EXPLODED VIEW

4 5 6 7 8 9



39
⚠
⚠
38
36
⚠
10
47
73
45
37
37
⚠
⚠
1-6
33
79
72
72
79
72
79
72
1-3
1-4
74
72
71
42
43
32
40
1-1
71
5
13
1-5
7
73
12
12
25
34
11
35
26
13
77
77
14
34
77
2
76
76
46
77
14
77
46
44
19
76
76
8
4
1-2
21
9
9
71
71
71
71
75
78
75
28

pling, or in some case

DISASSEMBLY PROCEDURES

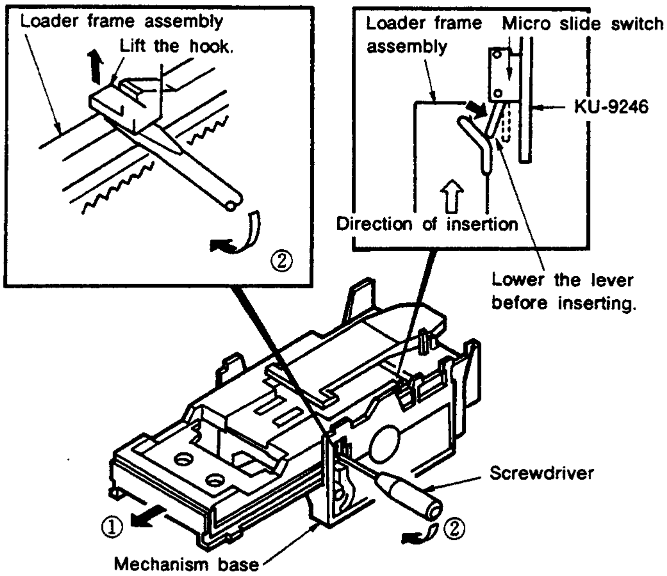
(Follow these procedures in reverse order to reassemble.)

1. Removing the loader frame assembly

① Pull the loader frame assembly out forwards until it stops.

② Insert a screwdriver with a narrow tip into the section indicated with the arrow, then lift the hook and pull the loader frame assembly out forwards.

NOTE: When reinserting the loader frame assembly, be careful not to damage the micro slide switch.


Loader frame assembly
Lift the hook.
②
Loader frame assembly
Micro slide switch
KU-9246
Direction of insertion
Lower the lever before inserting.
Screwdriver
①
②
Mechanism base

2. Removing the cassette mechanism

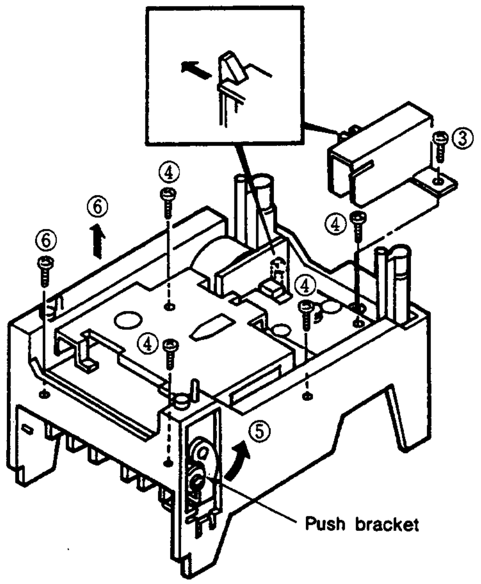
③ Remove the shield cover screw, then remove the shield cover.

④ Remove the five screws fastening the cassette mechanism.

⑤ Pressing the push bracket in the direction of the arrow...

⑥ ...lift the cassette mechanism up and off.

NOTE: The push bracket may be deformed if the cassette mechanism is lifted without pressing the push bracket in the direction of the arrow. (The same is true when reassembling.) A deformed push bracket cannot be used.
After fastening the cassette mechanism with the screws, check that the push bracket moves (rotates) properly.


③
④
⑥
⑥
④
④
④
⑤
Push bracket

3. Removing the push bracket

Do this with the loader frame assembly and cassette mechanism removed.

⑦ Remove the two special screws.

⑧ Remove the lever spring.

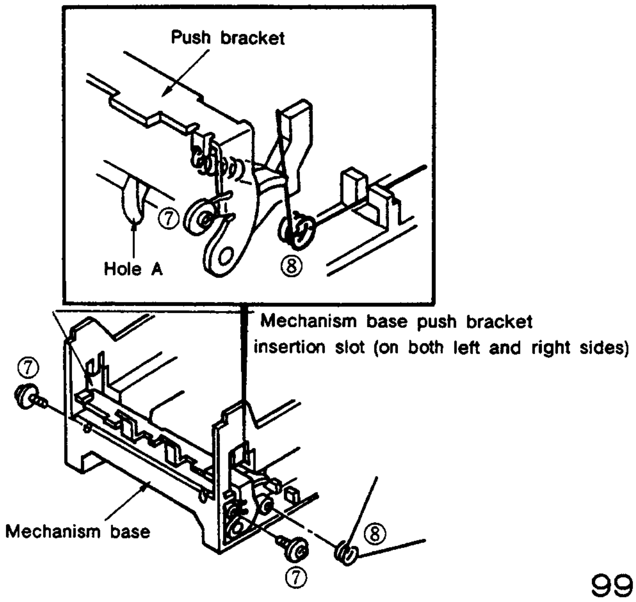
⑨ Remove the push bracket spring using a spring catching rod, etc., through hole A.

⑩ Remove the push bracket.

(a) Disconnect first the left then the right push bracket bar ring from the mechanism base's push bracket boss.

(b) Bring out first the left then the right side from the mechanism base's push bracket insertion slot.

NOTE: Be careful not to deform the push bracket (do not forcibly disassemble or assemble it). A deformed push bracket cannot be used.


Push bracket
⑦
Hole A
⑧
Mechanism base push bracket insertion slot (on both left and right sides)
⑦
Mechanism base
⑧
⑦

CASSETTE DECK SECTION

CASSETTE MECHANISM HM-55A

HM-55R UNIT PARTS LIST (REC/PB)

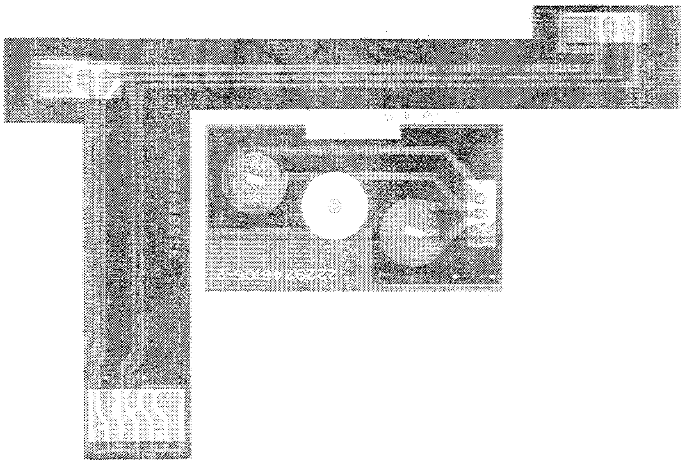
Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	411 1163 418	Loading Mecha Ass'y		1
◉ 2	411 1156 108	Mecha Base Ass'y		1
3	424 0183 000	Pulley Gear		1
4	423 0064 003	Belt		1
5	424 0182 001	Gear		1
6	475 1119 110	Slit Washer		1
7	433 0574 202	Push Lever		1
◉ 8	412 3467 102	Push Bracket		1
9	463 0708 008	Lever Spring		1
10	463 0709 007	Push Bracket SP.		1
11	433 0573 203	Clamper Arm		1
12	463 0710 009	Clamper SP.		1
13	431 0323 004	Clamper Press		2
14	463 0707 009	Clamper Press SP.		2
15	431 0329 202	Loader F. Sub Ass'y		1
16	GEN 1920 A	Loading Motor		1
17	421 0379 103	Motor Pulley		1
◉ 18	338 0154 000	CRF340 C. Mecha REC/PB		1
◉ 19	412 3468 101	Shild Bracket		1
◉ 20	412 3518 006	Shild Cover		1
◉ 21	KU- 9246 A	P.W. Board Ass'y		1
★ 22	203 8334 005	5P PH-3P/4P PH Con. Cord		1
★ 23	203 0240 003	1P Contact Cord		1
24	203 0521 007	Earth Wire Ass'y		1
25	212 1077 004	Micro Slide SW		2
26	475 1161 003	Washer		1
27	461 0724 002	Spacer	16×t5	2
◉ 28	412 3517 007	Shield Ring		3
SCREWS				
51	473 8044 004	Special Screw		4
52	471 3201 011	Bind Screw 2.6×4		2
53	473 7002 005	Tapping Screw (P) 3×6		2
54	473 7500 015	Tapping Screw (P) 3×8		6

HM-55P UNIT PARTS LIST (PB ONLY)

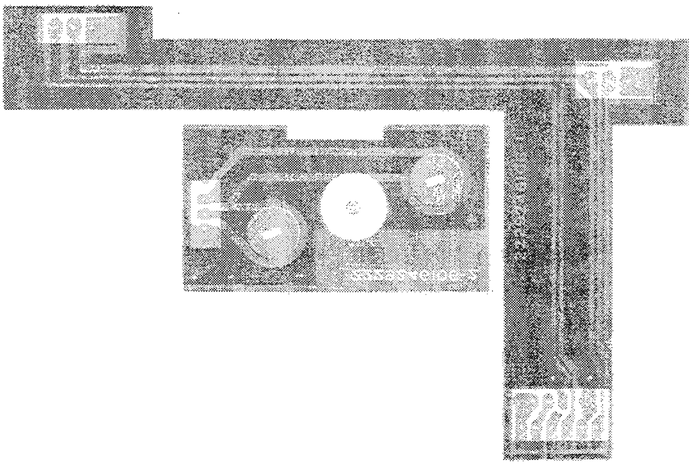
Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	411 1163 418	Loading Mecha Ass'y		1
◉ 2	411 1156 108	Mecha Base Ass'y		1
3	424 0183 000	Pulley Gear		1
4	423 0064 003	Belt		1
5	424 0182 001	Gear		1
6	475 1119 110	Slit Washer		1
7	433 0574 202	Push Lever		1
◉ 8	412 3467 102	Push Bracket		1
9	463 0708 008	Lever Spring		1
10	463 0709 007	Push Bracket SP.		1
11	433 0573 203	Clamper Arm		1
12	463 0710 009	Clamper SP.		1
13	431 0323 004	Clamper Press		2
14	463 0707 009	Clamper Press SP.		2
15	431 0329 202	Loader F. Sub Ass'y		1
16	GEN 1920 A	Loading Motor		1
17	421 0379 103	Motor Pulley		1
◉ 18	338 0155 009	CRF341 C. Mecha PB		1
◉ 19	412 3468 101	Shield Bracket		1
◉ 20	412 3518 006	Shild Cover		1
◉ 21	KU- 9246 A	P.W. Board Ass'y		1
★ 22	203 4856 008	3P EH-4P PH Con. Cord		1
★ 23	203 0240 003	1P Connect Cord		1
24	—	—		
25	212 1077 004	Micro Slide SW		2
26	475 1161 003	Washer		1
27	461 0724 002	Spacer	16×t5	2
◉ 28	412 3517 007	Shield Ring		2
SCREWS				
51	473 8044 004	Special Screw		4
52	471 3201 011	Bind Screw 2.6×4		2
53	—	—		
54	473 7500 015	Tapping Screw (P) 3×8		6

P.W.B UNIT ASS'Y

Component



Pattern Side

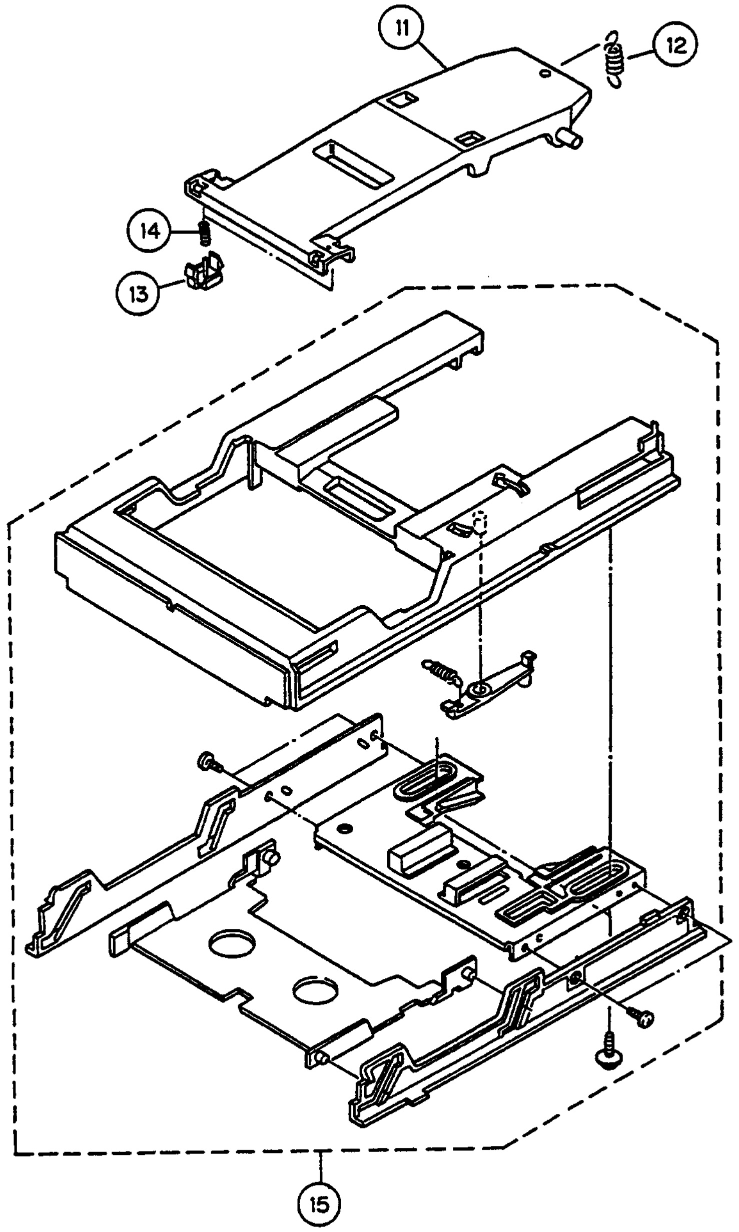


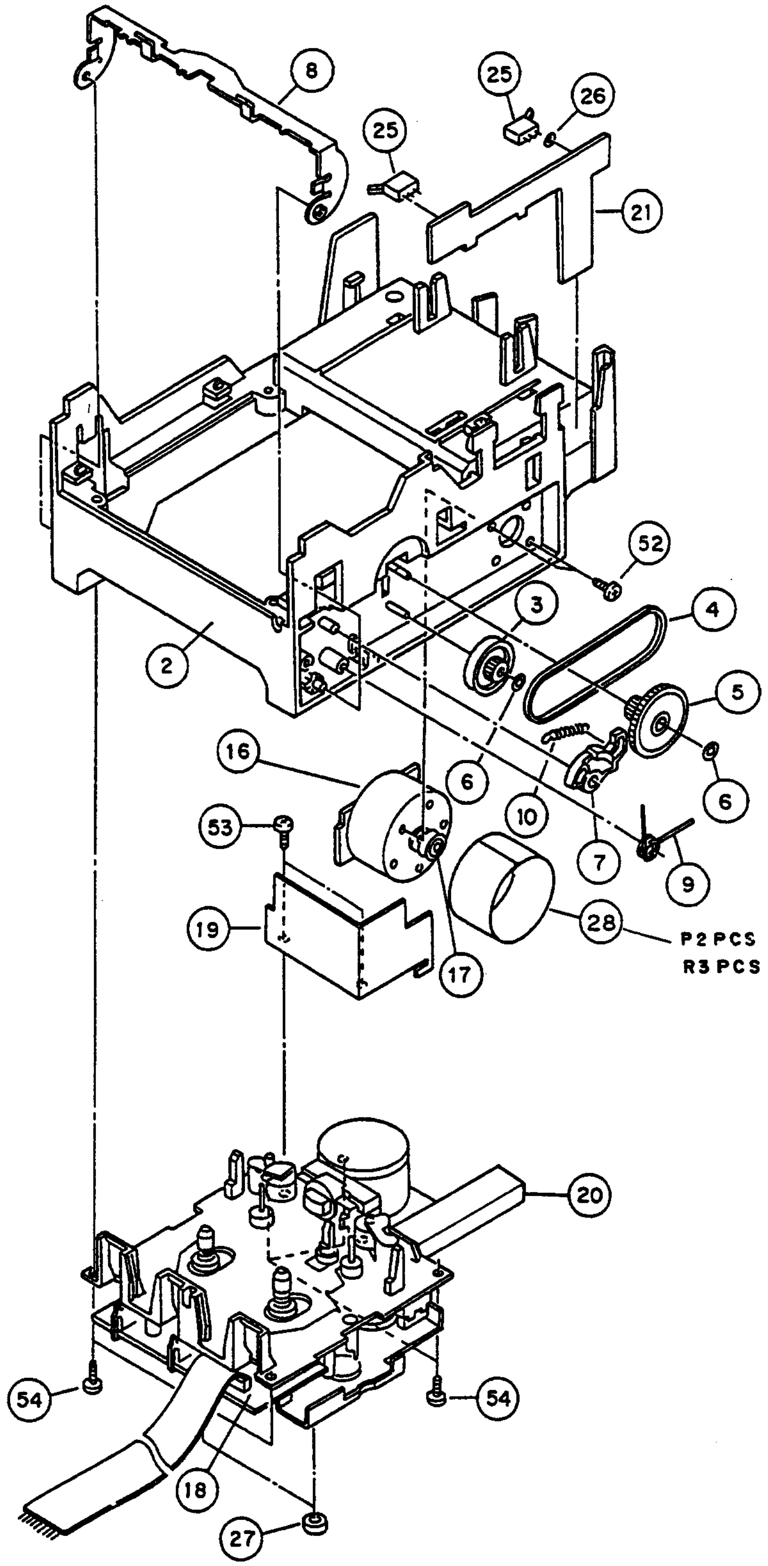
P.W.B. UNIT ASS'Y PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
OTHER GROUP				
	—	(P.W. Board)		(1)
	205 0355 062	6P KR Con Base (L)		1
	209 0008 146	Jumper (L=5)		2
	205 0409 031	3P DIP Socket		2
	002 0042 006	3C R. Wire Ass'y		1
	212 1077 004	Micro Slide Switch		2
	475 1161 003	Washer		1

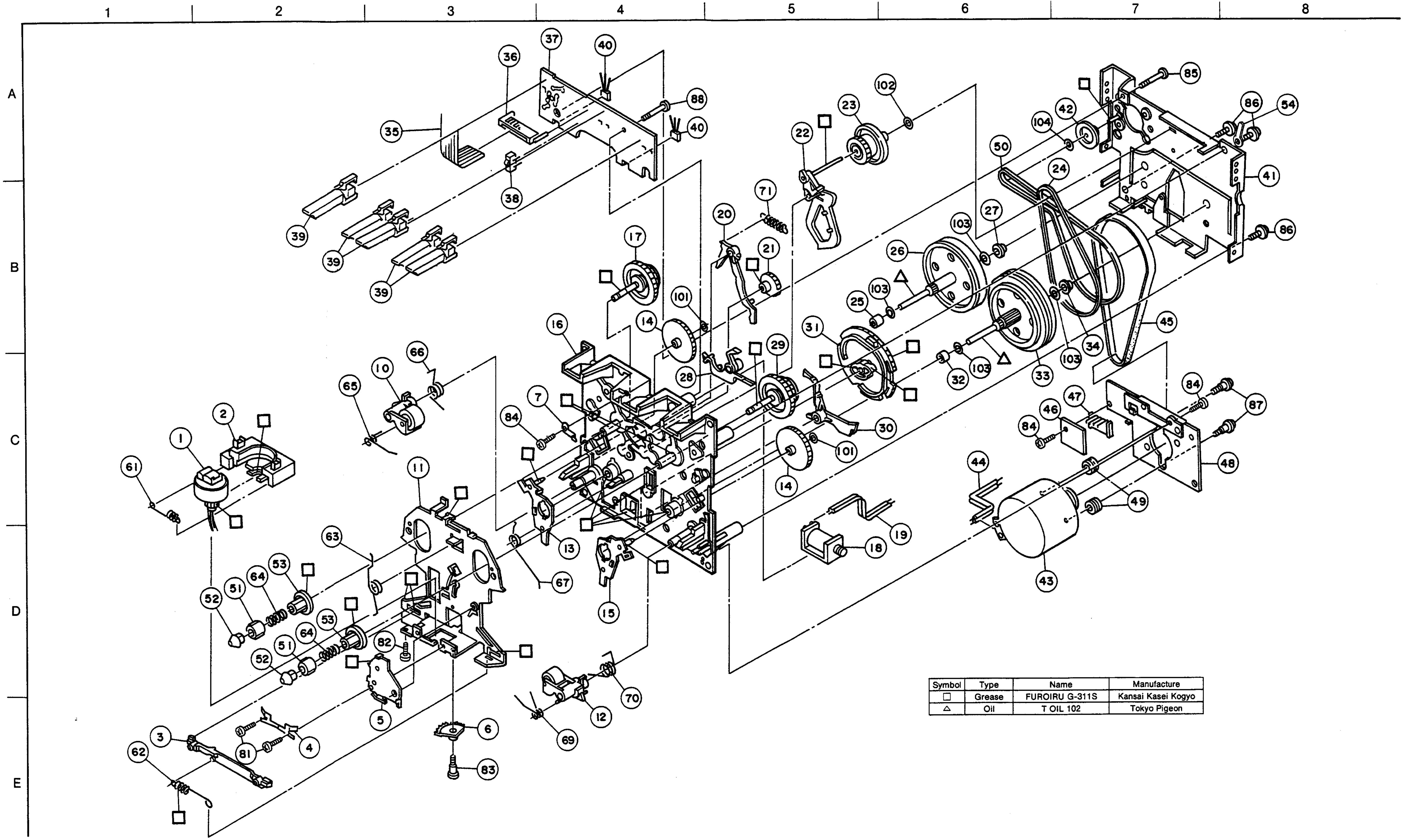
1 2 3 4 5 6 7 8

A B C D E


11
12
14
13
15

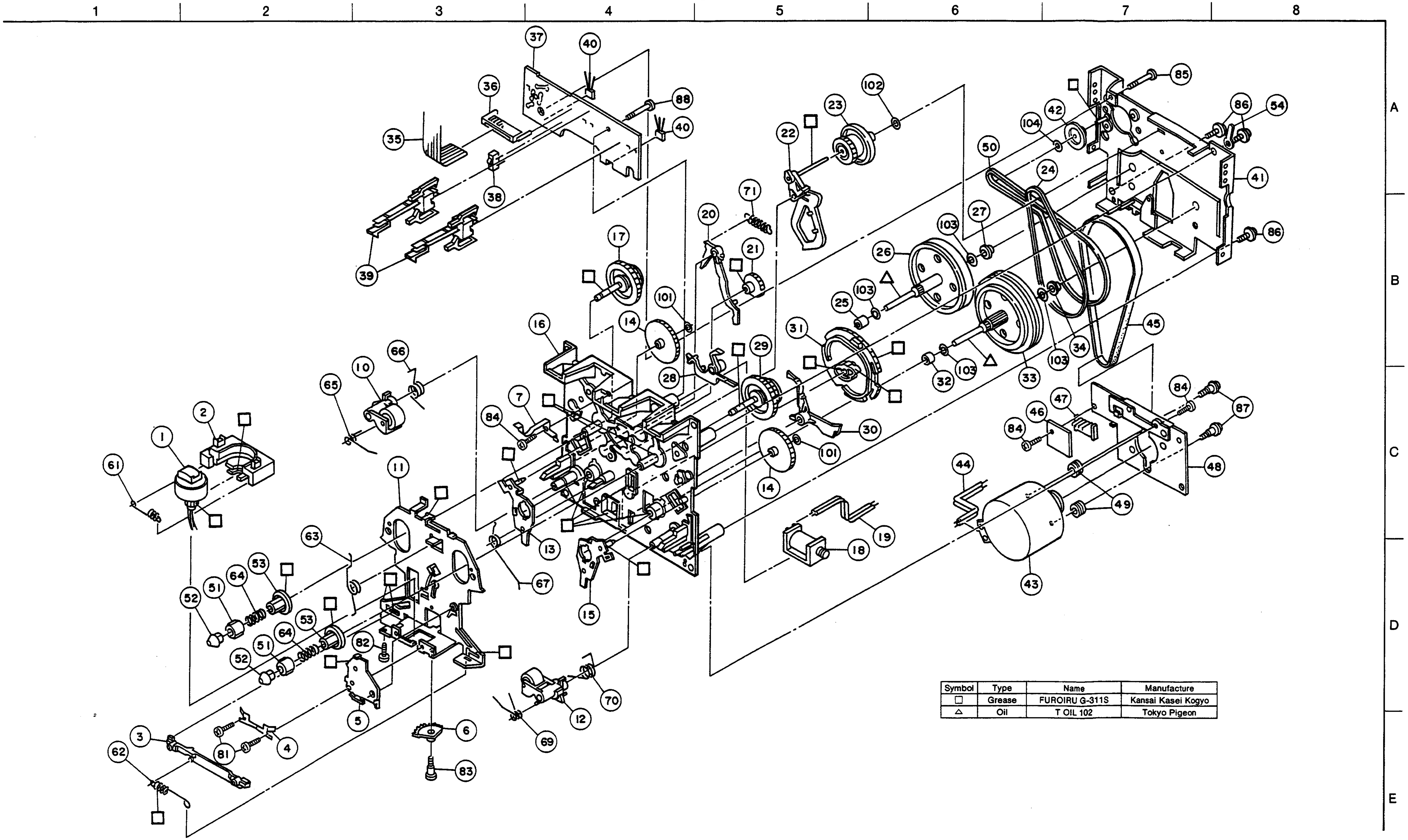

8
25
26
25
21
2
52
3
4
5
16
6
6
53
10
6
7
9
19
28
P2 PCS
R3 PCS
17
20
54
54
18
27

EXPLODED VIEW (REC/PB)


1
2
3
4
5
6
7
8
A
B
C
D
E
37
36
40
88
40
35
38
39
39
39
102
23
22
□
71
20
21
□
17
□
101
14
16
28
□
29
31
□
□
□
□
30
101
14
7
□
84
□
13
□
15
□
85
□
42
104
86
54
41
50
24
103
27
26
86
103
△
25
33
103
34
45
32
103
△
84
87
47
46
84
48
44
49
43
19
18
66
10
65
2
□
1
61
□
11
□
63
53
□
51
64
52
53
□
64
51
52
82
□
□
□
5
6
83
3
81
4
62
□
67
70
12
69

Symbol	Type	Name	Manufacture
□	Grease	FUROIRU G-311S	Kansai Kasei Kogyo
△	Oil	T OIL 102	Tokyo Pigeon

EXPLODED VIEW (PB Only)


1
2
3
4
5
6
7
8
A
B
C
D
E
37
40
36
88
35
38
39
102
23
22
71
20
21
17
16
14
101
28
29
31
25
103
26
27
50
24
42
104
86
54
85
41
45
34
33
32
30
66
10
65
7
84
2
1
61
11
13
63
53
64
51
52
82
5
6
83
3
62
81
4
67
15
12
69
70
19
18
44
43
49
46
47
48
87

Symbol	Type	Name	Manufacture
□	Grease	FUROIRU G-311S	Kansai Kasei Kogyo
△	Oil	T OIL 102	Tokyo Pigeon

CASSETTE DECK SECTION

PARTS LIST OF CASSETTE MECHANISM (REC/PB) Parts No. 3380154000

Ref. No.	Part No.	Part Name	Remarks	Q'ty
* 1	948 0000 126	Ass'y Holder Head	22-093-4269	1
2	948 0000 207	Frame Head	22-219-1026	1
3	948 0000 304	Lever Head	22-259-2012	1
4	948 0000 401	Spring Azimuth	16-160-4032	1
5	948 0000 508	Ass'y Arm Assist	22-093-4053	1
6	948 0000 605	Gear Arm Head	22-239-4020	1
7	948 0000 702	Plate Stopper	22-119-4283	1
8	—	—		
9	—	—		
10	948 8000 809	Ass'y Pinch Arm L	22-093-4149	1
◉ 11	948 8000 906	Chassis Head	22-112-2022	1
12	948 0001 002	Ass'y Pinch Arm R	22-093-4150	1
13	948 0001 109	Ass'y Arm Play L	22-093-4063	1
14	948 0001 206	Gear Play	22-222-4042	2
15	948 0001 303	Ass'y Arm Play R	22-093-4062	1
◉ 16	948 0001 400	Chassis OS	22-210-1023	1
17	948 0001 507	Ass'y Sub Reel L	22-093-3277	1
18	948 0001 604	Solenoid	07-W021C	1
19	—	Wire	22-072-4365	1
20	948 0001 808	Arm RVS	22-239-3010	1
21	948 0001 905	Gear FF	22-222-4048	1
22	948 0002 001	Ass'y Arm FR	22-093-4061	1
23	948 0002 108	Ass'y Pulley FR	22-093-3060	1
24	948 0002 205	Belt FR	02-083-4059	1
25	948 0002 302	Metal	22-262-4033	1
26	948 0010 006	Ass'y Flywheel L	22-220-3278	1
27	948 0002 315	Metal	16-262-4031	1
28	948 0002 506	Arm Brake	22-239-3028	1
29	948 0001 510	Ass'y Sub Reel R	22-093-4151	1
30	948 0002 603	Arm Triger	22-268-3008	1
31	948 0002 700	Gear Cam	22-221-2090	1
32	948 0005 600	Metal	PBE16449	1
33	948 0010 103	Ass'y Flywheel R	22-220-3141	1
34	948 0002 331	Metal	16-262-4030	1
*◉ 35	948 0002 849	Wire (14P)	16-072-4238	1
◉ 36	948 0002 904	Holder Wire	16-219-2382	1
◉ 37	948 0003 000	P.W.Board	22-070-3261	1
38	948 0003 107	Switch Mode	04-SW150	1
39	948 0003 204	Switch (Leaf)	04-MTS10045MVJ0	5
40	948 0003 301	Hall IC.	00-LB9051A	2
◉ 41	948 0003 408	Bracket FW	22-093-3276	1
42	948 0003 505	Pulley	17-223-4639	1
43	948 0003 628	Ass'y Moter	22-093-4451	1
44	—	Wire	22-072-4216	1
45	948 0003 712	Belt Main	02-084-4104	1
◉ 46	948 0003 806	P.W.Board	22-070-4046	1
*◉ 47	948 0003 903	Housing	00-S5BEH	1
48	948 0004 009	Bracket Motor	22-119-4249	1
49	948 0004 106	Rubber Cushion	PBE13360	2
50	948 0004 203	Belt	02-083-4094	1
51	948 0004 300	Reel A	22-228-3210	2
52	948 0004 407	Reel B	22-228-3211	2
53	948 0004 504	Pulley Reel	22-223-3212	2
54	—	Keep Wire	PBE14411	1
61	948 0004 708	Spring	01-080-4251	1
62	948 0004 711	Spring	01-080-4249	1
63	948 0004 724	Spring	01-082-4250	1
64	948 0004 737	Spring	01-081-4333	2
65	948 0004 740	Spring	01-082-4253	1
66	948 0004 753	Spring	01-082-4262	1
67	948 0004 766	Spring	01-082-4337	1
68	—	—		
69	948 0004 779	Spring	01-082-4254	1
70	948 0004 782	Spring	01-082-4261	1
71	948 0004 795	Spring	01-080-4260	1
81	948 0004 821	Screw (Azmuth)	03-300-4056	2
82	948 0004 818	Screw	PGSU20A2005	1
83	948 0004 706	Screw	03-300-4043	1
84	948 0004 834	Screw	PGSD10A2004	3
85	948 0004 847	Screw	PGSD20A2016	1
86	948 0004 850	Screw	PGSL15A2608	3
87	948 0004 864	Screw	PBE13913	2
88	948 0004 876	Screw	PGSL10A12608	1
101	948 0004 902	Washer	PGWP16X040020S	2
102	948 0004 915	Washer	PGWP16X040040	1
103	948 0004 928	Washer	PGWP26X042013	4
104	948 0004 931	Washer	PGWP13X030025S	1

PARTS LIST OF CASSETTE MECHANISM (PB ONLY) Part No. 3380155009

Ref. No.	Part No.	Part Name	Remarks	Q'ty
* 1	948 0000 113	Ass'y Holder Head	22-093-4067	1
2	948 0000 207	Frame Head	22-219-1026	1
3	948 0000 304	Lever Head	22-259-2012	1
4	948 0000 401	Spring Azimuth	16-160-4032	1
5	948 0000 508	Ass'y Arm Assist	22-093-4053	1
6	948 0000 605	Gear Arm Head	22-239-4020	1
7	948 0000 702	Plate Stopper	22-119-4283	1
8	—	—		
9	—	—		
10	948 0000 809	Ass'y Pinch Arm L	22-093-4149	1
◉ 11	948 0000 906	Chassis Head	22-112-2022	1
12	948 0001 002	Ass'y Pinch Arm R	22-093-4150	1
13	948 0001 109	Ass'y Arm Play L	22-093-4063	1
14	948 0001 206	Gear Play	22-222-4042	2
15	948 0001 303	Ass'y Arm Play R	22-093-4062	1
◉ 16	948 0001 400	Chassis OS	22-210-1023	1
17	948 0001 507	Ass'y Sub Reel L	22-093-3277	1
18	948 0001 604	Solenoid	07-W021C	1
19	—	Wire	22-072-4365	1
20	948 0001 808	Arm RVS	22-239-3010	1
21	948 0001 905	Gear FF	22-222-4048	1
22	948 0002 001	Ass'y Arm FR	22-093-4061	1
23	948 0002 108	Ass'y Pulley FR	22-093-3060	1
24	948 0002 205	Belt FR	02-083-4059	1
25	948 0002 302	Metal	22-262-4033	1
26	948 0010 006	Ass'y Flywheel L	22-220-3278	1
27	948 0002 315	Metal	16-262-4031	1
28	948 0002 506	Arm Brake	22-239-3028	1
29	948 0001 510	Ass'y Sub Reel R	22-093-4151	1
30	948 0002 603	Arm Triger	22-268-3008	1
31	948 0002 700	Gear Cam	22-221-2090	1
32	948 0005 600	Metal	PBE16449	1
33	948 0010 103	Ass'y Flywheel R	22-220-3414	1
34	948 0002 331	Metal	16-262-4030	1
*◉ 35	948 0002 852	Wire (12P)	16-072-4098	1
◉ 36	948 0002 904	Holder Wire	16-219-2382	1
◉ 37	948 0003 000	P.W.Board	22-070-3261	1
38	948 0003 107	Switch Mode	04-SW150	1
39	948 0003 204	Switch (Leaf)	04-MTS10045MVJ0	2
40	948 0003 301	Hall IC. LB9051A	00-LB9051A	2
◉ 41	948 0003 408	Bracket FW	22-093-3276	1
42	948 0003 505	Pulley	17-223-4639	1
43	948 0003 628	Ass'y Moter	22-093-4451	1
44	—	Wire	22-072-4216	1
45	948 0003 712	Belt Main	02-084-4104	1
◉ 46	948 0003 806	P.W.Board	22-070-4046	1
*◉ 47	948 0003 916	Housing	00-S3BEH	1
48	948 0004 009	Bracket Motor	22-119-4249	1
49	948 0004 106	Rubber Cushion	PBE13360	2
50	948 0004 203	Belt	02-083-4094	1
51	948 0004 300	Reel A	22-228-3210	2
52	948 0004 407	Reel B	22-228-3211	2
53	948 0004 504	Pulley Reel	22-223-3212	2
54	—	Keep Wire	PBE14411	1
61	948 0004 708	Spring	01-080-4251	1
62	948 0004 711	Spring	01-080-4249	1
63	948 0004 724	Spring	01-082-4250	1
64	948 0004 737	Spring	01-081-4333	2
65	948 0004 740	Spring	01-082-4253	1
66	948 0004 753	Spring	01-082-4262	1
67	948 0004 766	Spring	01-082-4337	1
68	—	—		
69	948 0004 779	Spring	01-082-4254	1
70	948 0004 782	Spring	01-082-4261	1
71	948 0004 795	Spring	01-080-4260	1
81	948 0004 821	Screw (Azmuth)	03-300-4056	2
82	948 0004 818	Screw	PGSU20A2005	1
83	948 0004 706	Screw	03-300-4043	1
84	948 0004 834	Screw	PGSD10A2004	3
85	948 0004 847	Screw	PGSD20A2016	2
86	948 0004 850	Screw	PGSL15A2608	3
87	948 0004 864	Screw	PBE13913	2
88	948 0004 876	Screw	PGSL10A12608	1
101	948 0004 902	Washer	PGWP16X040020S	2
102	948 0004 915	Washer	PGWP16X040040	1
103	948 0004 928	Washer	PGWP26X042013	4
104	948 0004 931	Washer	PGWP13X030025S	1